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A QUARTERLY JOURNAL OF

Natural History for the North of England

EDITED BY
W. A. SLEDGE, Ph.D., B.Sc.,
THE UNIVERSITY, LEEDS,

with the assistance as referees in special departments of

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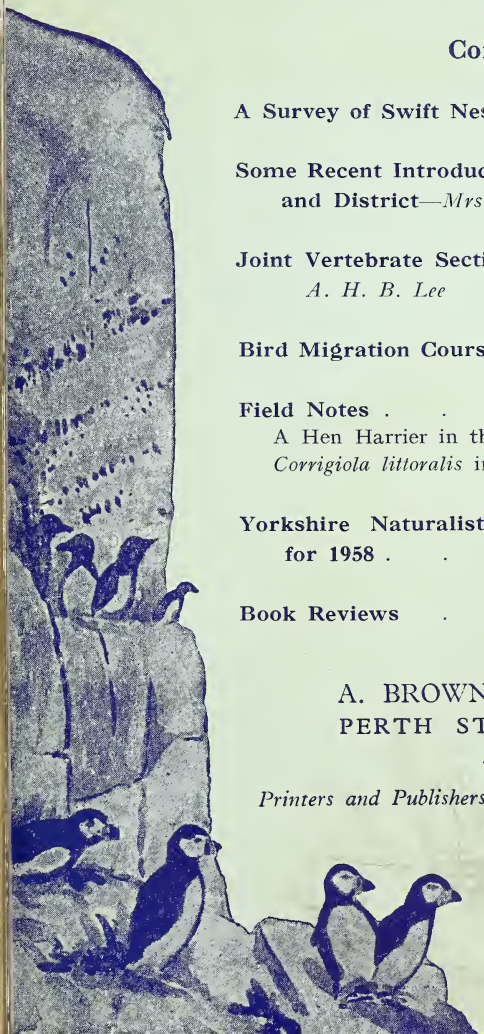

Contents

PAGE

A Survey of Swift Nesting-Sites—*K. G. Spencer* . 1-3

Some Recent Introductions to the Flora of Otley and District—*Mrs. F. Houseman* 3-4

Joint Vertebrate Section Meetings in 1958—*A. H. B. Lee* 5

Bird Migration Course at Grantley Hall . . 5-6

Field Notes 6
A Hen Harrier in the Peak District.
Corrigiola littoralis in the Castleford Area.

Yorkshire Naturalists' Union: Annual Report for 1958 7-29

Book Reviews 30-36

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Y.N.U. EXHIBITION MEETING.

Members and Associate Members are invited to contribute exhibits to the Y.N.U. Exhibition Meeting to be held in the Biological Laboratories of Leeds University on the afternoon of Saturday, 18th April, 1959. Those wishing to do so should get in touch with the Hon. Exhibition Secretary (A. H. B. Lee, 25 Church Wood Avenue, Leeds 16), as soon as possible so that bookings for the available space may be made. The nature of the exhibit and some indication of the space likely to be required should, if possible, be stated when the booking is made.

Copies of Mr. A. A. Pearson's Papers, Mycena, The Genus Lactarius, and The Genus Inocybe, and second editions of British Boleti and The Genus Russula, price 2/6 each, and Mr. P. D. Orton's Cortinarius Part 1 and 2 price 7/6 each, may be obtained, from the Editor of *The Naturalist.*

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THE NATURALIST

FOR 1959

A SURVEY OF SWIFT NESTING-SITES

COMPILED BY K. G. SPENCER

In the summer of 1957 members of the East Lancashire Ornithologists' Club conducted a survey of Swift (*Apus apus*) nesting-sites within a twelve-mile radius from the centre of Accrington. It is important to stress that a census was not attempted: the objective was simply in a general way to discover the kind of sites that Swifts in the district choose for their nesting. What follows is a summary of the observations. For complete details about each site interested readers may consult any of three scripts, one in the possession of the Club's Honorary Secretary (Mr. L. E. Bouldin, 175 Manchester Road, Burnley), one in the possession of the enquiry organiser, and one at the B.T.O. lending library, 2 King Edward Street, Oxford.

Sixty-one sites of single nests or colonies, known to have been used within the past three years, were located. Thirty-seven were on mills, warehouses or factories, ten on houses, seven on farms, farm buildings or stables, and seven in other situations.

According to *The Handbook of British Birds*, the Swift nests in ' Substantial buildings . . . in crevices under eaves of houses, in holes of thatch, occasionally in natural fissures in face of cliffs, old nests of House-Martins, nest boxes, and abroad in old woodpecker holes '—a very fair summary, which at least avoids the exaggerated emphasis commonly given to towers, spires and lofty ruins, though it misleads in its suggestion that nests in stone buildings are necessarily under the eaves. High crevices anywhere in the outer stonework will serve: where available, sites in crannies under factory windowsills seem particularly favoured.

One of the very few authors accurately to describe the habitat of the Swift as it is hereabouts, and must indeed be throughout a great part of industrial Britain, is Mr. C. Oakes, who in *The Birds of Lancashire* (1953) points out that though there are of course some rural nesters, nevertheless 'As a breeder the Swift is thoroughly urban, more so than the House-Martin, for it nests abundantly in the heart of manufacturing towns, and indeed the majority of the breeding population are not merely town-dwellers but town *gamins*, chasing and screaming around their nesting-sites in mill-chimneys and dingy warehouses miles from open country.'

Dates of Construction of Buildings. Details of the age of buildings employed as nesting sites by Swifts were obtained in thirty-two instances.

pre-1800	1800–10	1810–20	1820–30	1830–40	1840–50	1850–60
2	0	1	1	2	2	3
1860–70	1870–80	1880–90	1890–1900	1900–10	1910—	
6	5	5	3	2	0	

The pattern follows exactly that of cotton-weaving history. In Burnley, which may be taken as typical, weaving ' boomed ' in the years 1850–1910. By 1886 the town's 50,000 looms produced a greater length of cloth than any other town in the world. Only four mills were demolished or adapted to purposes other than weaving in the period 1850-1890. Many mills were extended and a considerable number of new ones built (W. Bennett, *The History of Burnley*, pt. 4, Burnley, 1951). Besides the actual mills, many houses on which Swifts now nest owe their origin to these days of cotton prosperity. Apart from the Fulmar, I can think of no bird whose welfare has been more closely correlated with a specialised industrial activity of mankind.

Size of Colonies, Height and Aspect of Nesting Holes Etc.—It was originally no part of the enquiry to take note of these things, and no discredit must attach to observers who gave no details. But since some did, it seems worthwhile to examine those we have.

Size of Colony was mentioned in thirty-three cases:

No. of colonies with	*c.* 1	nest	13		No. of colonies with	*c.* 7	,,	1
,, ,, ,, ,,	2	,,	5		,, ,, ,, ,,	8	,,	1
,, ,, ,, ,,	3	,,	1		,, ,, ,, ,,	9	,	1
,, ,, ,, ,,	4	,,	6		,, ,, ,, ,,	10	,,	1
,, ,, ,, ,,	5	,,	1		,, ,, ,, ,,	11	,,	1
,, ,, ,, ,,	6	,,	2					

It is unlikely that aspect means much to the Swift. Nests can be found on adjacent walls of the same building, facing towards different points of the compass. Details were given for thirty-seven sites. Beginning at north, and reading clockwise round the eight points of the compass, the figures are: 5, 2, 5, 3, 9, 1, 10, 2.

Fabric of Building, and Surroundings.—There is some slight evidence to suggest that red-brick buildings in particular are likely to hold Swift colonies. Possibly the fabric is more inclined than stone to develop the suitable cavities. An important consideration—stressed to me by Mr. Oakes—is that the nest shall have plenty of space in front and below, facilitating clear entry and departure by its owners.

The proximity of water has been suggested as a possible attraction to nesting Swifts. (Mr. W. Farron's return; also mentioned in London N.H.S. (Committee of) *The Birds of the London Area since* 1900. London, 1957). That may be, but it is certainly not an essential.

Height of Holes. This was recorded in twenty-nine instances. The overall average was just over 35 ft. For mills (20) the average was just over 40 ft., for houses, farms, etc. (6) between 20 and 25 ft., and for other buildings (3) between 25 and 30 ft. No holes were reported at less than about 20 ft.; the highest were on mills at about 65 ft.

In country areas, where tall buildings are scarce, Swifts rest content with lower sites. Thus, to take just one random example, from outside the survey-area, Mr. E. Ward records a nest at 13 ft. in a cottage at Stainforth, West Yorkshire. But more than a hundred and seventy years ago the French ornithologist Buffon (*Histoire Naturelle des Oiseaux* (?1781) trs. Smellie; London 1812) quite rightly noticed the attraction of height: 'Their lodgement is a hole in the wall, which widens into a larger cavity, and is preferred in proportion to its height from the ground, as affording the safest retreat.' The same holds good today, and it may be that high nesting not only gives protection from direct predators, but may minimise competition from House-Sparrows, Starlings, Swallows and House-Martins. In our north-west region, Mitchell (*The Birds of Lancashire*, 1885) actually witnessed changes taking place: 'It is much attached to ancient breeding places, and in Clitheroe, where the species is very numerous, the same holes have been tenanted for many years; some of them being in the roofs of mere cottages, and less than eighteen feet from the ground. In entering a new locality, however, only the loftiest buildings are chosen.' Our survey confirms the implication that traditional sites are not abandoned: there are settlements at the old Grammar Schools in Whalley and Colne, for instance, which have the appearance of being very long-established. There has been an extension of breeding-sites, not a complete transference.

The Swift: its Past, Present and Future. A General Discussion

What was the strength of the British Swift population in the olden days ? When most of the country was forest and marshland, we may reasonably suppose the bird was rather rare, restricted chiefly to the vicinity of ravines and sea-cliffs. Perhaps it was about as common as the Shag is today. Its first real opportunity to colonise buildings probably occurred during the Roman occupation, and in subsequent centuries the species no doubt prospered in direct relation to the extension of human settlement. Sites such as Gilbert White describes in a letter to the Hon. Daines Barrington, 28-9-1774 (in *The Natural History and Antiquities of Selborne*, London 1789), would be typical of both town and village by the 1770's: 'In general they haunt tall buildings, churches and steeples, and breed only in such; yet in this village some pairs frequent the lowest and meanest cottages, and educate their young under those thatched roofs.' The foundations of the bird's current abundance were laid in the nineteenth century with the widespread erection of substantial buildings such as seaside hotels, chapels, railway sheds, and (as already remarked) mills.

As to the present and the future. Swifts no longer breed in Inner London (Cramp, S. (1950), The Census of Swifts, Swallows and House-Martins, 1949. *London Bird Report*, 14: 49: 57, cited in L.N.H.S. (Committee of), *op. cit.*) or, if I remember rightly, in the more central parts of Leeds and Manchester. In our survey-area, they still nest close to the heart of Accrington (pop. 40,000) and likewise at Burnley (83,000) but at Blackburn (111,000) Mr. R. D. S. Wilson remarks on their absence

from the central areas, even though apparently-good sites are available. His observations confirm those of the London ornithologists who have suggested that the shortage of flying insects rather than the shortage of nesting places has accounted for the birds' withdrawal. The stronghold of Swifts at present, they find, is the inner suburban zone; fewer nest in the outer suburbs, and fewer still in the city outskirts.

I submit that, despite such local reverses, the breeding population of the Swift in the industrial north is now as great as at any time in the past. However, there are signs that it may have reached its limits. Thus, Mr. L. E. Bouldin points out that there are many apparently suitable buildings, both in town centres *and suburbs*, which remain untenanted. Food supply again appears to be the crucial factor, and it seems that with improved sanitation and extended use of insecticides—not only in this country, but in those lands where the birds winter—the situation from the Swift's point of view is unlikely to improve. That consideration may be all-important. If not, then circumstances appear to be in the species' favour. Mills may continue to be demolished (in Burnley, for instance, at least three cinemas—the Empire, Odeon, and Pentridge—stand on sites formerly occupied by Mills (W. Bennett, *op. cit.*, Part 3, Burnley, 1948), but at the same time the fabric of newer ones, through weathering, will develop minor flaws to serve as nesting-holes. And, again, it may be that those rows of late nineteenth century terrace houses—such a feature of the area—will gradually become available in the same way.

Acknowledgements.—The following contributed data: E. Battersby, D. Birtwell, J. J. Boon, L. E. Bouldin, F. Elliman, W. Farron, W. G. Hale, K. Halstead, B. Hartley, O. D. Jones, D. S. Sodo, K. G. Spencer, E. Ward (and the Bacup and Rawtenstall Grammar School N.H.S.), N. Ward, J. W. Watts, R. D. S. Wilson, T. G. Wood.

From outside the area of the survey, information was contributed by W. Howe of Langwathby, near Penrith, and by K. A. Gunning of the Grange and District N.H.S. (per Dr. R. J. Elliott). Though I decided against incorporating their material, I am no less grateful to them for sending it. I may add that it confirms our local observations.

For valuable assistance with the dating of buildings, I thank Mr. W. Bennett and also the Borough Librarians of Blackburn, Bury and Clitheroe.

The idea of this survey originated with the Leeds and District Bird-Watchers' Club, which in the summer of 1956 had already started upon a similar line of investigation. We seek justification in the assertion that imitation is the sincerest form of flattery, and ask the Yorkshire club to accept our assurance that our survey was in no wise undertaken competitively. I am grateful to Messrs A. H. B. Lee (Hon. Sec. L. & D. B.W.C.), and John R. Govett (Organiser of the Swift Enquiry) for letting me see the results so far obtained. Once again, these seem clearly to confirm our own findings.

SOME RECENT INTRODUCTIONS TO THE FLORA OF OTLEY AND DISTRICT

MRS. F. HOUSEMAN

During the past few years many new plants have appeared in the Otley district and a list of these has been compiled. Careful investigation into how they were introduced is also in progress and records have been kept of the plants which have established themselves.

Around the lagoons of the sand and gravel workings on the north side of the river, east and west of the town, on land which used to be meadows well grazed by cattle, *Reseda luteola* L. is growing in abundance. *Alisma plantago-aquatica* L., *Ranunculus sceleratus* L., *Potamogeton pectinatus* L., *Triglochin palustris* L., *Typha latifolia* L. and *Elodea canadensis*, Mich. are in fair quantity. The last named, usually a shy flowerer, was seen in flower in 1958. In these areas various commoner

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members of the Juncaceae are now in profusion. In 1956, a colony of Verbascums appeared on a local works tip and reappeared, though not in quantity, in 1958. These were *V. nigrum* L. *f. nigrum*, *V. nigrum* L. *f. albiflorum* (Schrad) Hausm. and *V. virgatum* Stokes (det. Kew). *V. thapsus* L. was also present. *Sisyrinchium angustifolium* Miller came as a big surprise in 1958. *Hieracium brunneocroceum* Pugsl., *Mentha alopecuroides* Hull and *Endymion hispanicus* (Mill.) Chouard also occurred in this place. Unfortunately these may disappear owing to tipping of stones and rubble and the suggestion put forward by the local council that the tip should be levelled. *Saxifraga granulata* L. has now spread into another field on the East Chevin slopes. When Mr. G. A. Shaw paid a visit to see this in 1958, he discovered *Ophioglossum vulgatum* L. near by. *Scrophularia umbrosa* Dumort. is now present alongside Otley Mills Goit growing with the commoner *S. nodosa* L. and *S. aquatica* L. The tip situated between the Goit and the River Wharfe has recently become the home of many plants new to this district. Amongst these, *Allium scorodoprasum* L. is now in abundance; and the walled banks of the river and the Goit have become the crannied homes of *Arabis hirsuta* L., *Cochlearia alpina* L., *Cymbalaria muralis* Gaertn., Mey. & Schreb. and *Ranunculus sceleratus* L. For the past few years two strong plants of *Solidago virgaurea* L. have flowered well on the bank of the river near this tip. Some of the last-named plants may have been washed down from the upper reaches of the Wharfe, where they are more plentiful, as the river overflows at this point.

Several plants of *Galinsoga ciliata* (Raf.) Blake grew amongst cobble-stones and in bare patches of ground near Otley bus station in 1957 and appeared again the following year. The discovery of an unused hen-run, very overgrown, brought a succession of finds during 1958. Several luxurious plants of *Scandix pecten-veneris* L. and *Alopecurus myosuroides* Hudson were first found. Later *Anthemis arvensis* L. grew in fair quantity and one plant each of *Anagallis arvensis* L. ssp. *foemina* Miller and *Ranunculus arvensis* L. were found. The latter grew on disturbed ground in Ellar Ghyll in 1956 to reappear in that place in 1958. By the roadside here, several plants of *Centauria montana* L. have become naturalised and one plant of *Artemisia absinthium* L., which grows in profusion on the Council's rubbish tip, has arrived. Several other casuals have been noted during 1958. *Euphorbia lathyrus* L. appeared in a herbaceous border at ' Clydeville '. A form of *Anemone nemorosa* L. with blue petals and four plants of *Helleborus viridis* L. were discovered in a plantation. These could have been established a few years, and may have been planted but are now quite naturalised. *Geranium dissectum* L. is another plant which came quite recently on disturbed ground and is increasing.

The railway goods sidings though small have provided many new finds in recent years. Some are now well established. *Sisymbrium orientale* L., *Senecio viscosus* L., *Chaenorhinum minus* (L.) Lange, *Hieracium brunneocroceum* Pugsl. and *Melilotus officinalis* (L.) Pallas are amongst these, whilst *Chrysanthemum segetum* L. and *Melilotus alba* Desr. put in an appearance in 1957. *Reseda lutea* L. continues to flourish here and *Senecio squalidus* L. is spreading along the tracks.

Near Pool bridge, *Cicerbita macrophylla* (Willd.) Wallr. is growing in two places now. Near here is an exceptionally fine plant of *Cicerbita bourgaei* (Boiss.) Beauverd (det. Kew, 1958). This plant I noticed first in 1940 when it was quite small. It is a native of Asia Minor, occasionally naturalised in Britain. *Medicago sativa* L. introduced by agriculture is now spreading round the edges of the arable fields.

Near Wescoe Hill, one plant of *Erodium cicutarium* (L.) L'Héritier was seen growing together with several plants of *Diplotaxis muralis* (L.) DC. on a sand pile by the roadside. On a re-seeded verge on the Harrogate road past Weeton station *Chrysanthemum segetum* L. grew in quantity in 1958.

An annual visit to Otley Council's rubbish tip always yields surprises. Last year the lime-loving thistle, *Carduus nutans* L. made a very handsome centrepiece on the tip and *Linaris repens* (L.) Miller is now plentiful there. *Setaria viridis* (L.) Beauv. and *Phalaris canariensis* L. are in fair quantity. Two members of the Fumitory family were discovered in 1958. These were *Fumaria micrantha* Lag. and *F. parviflora* Lam. A huge plant 6 ft. tall of *Melilotus alba* Desr. was also present.

Many garden escapes have also become well established on nearly every piece of waste land and rubbish tip in the district. Amongst these plants are *Solidago canadensis* L., *Calendula* sp., *Malcolmia maritima* Br., *Althaea rosea* L., *Linaria dalmatica* Mill., *Antirrhinum majus* L., *Calceolaria* sp., *Montbretia* sp., *Aster novi-belgii* L. and *Lysimachia punctata* L.

JOINT VERTEBRATE SECTION MEETINGS IN 1958

At the Spring Meeting held in St. John's Parish Hall, Leeds, on March 15th, over 120 members and associates (representing 21 of the affiliated societies) were present. George Ainsworth gave the Annual Report of the Spurn Bird Observatory Committee, and the Ornithological Report for 1957 was presented by Ralph Chislett.

Philip Stead described the topography and birds of Teesmouth and Mrs. Grace Hickling gave an illustrated talk on the life cycle of the ' Grey Seals of the Farne Islands ". Finally, R. M. Wreglesworth presented a miscellany of bird slides. Paintings by John Leeson were on display and a vote of thanks was proposed by Roy Crossley.

A similar number of members and associates (representing 20 of the affiliated societies) attended the October Meeting. The Annual Report of the Mammals Section was dealt with by Mrs. E. Hazelwood. The interim reports of the Spurn Bird Observatory Committee and the Ornithological Section were followed by an illustrated description of the 1958 Ornithological Congress held in Finland, given by Edward Skinner.

John Armitage then discussed ' Some reptiles and amphibians ' and Arthur Gilpin described his experiences with ' The Goshawk and some other Danish birds '; both lectures were illustrated by the speakers' own slides. Tim King showed a collection of bird slides. John Govett thanked the contributors on members' behalf.

Both meetings were presided over by Edward Skinner as Chairman of the joint sections for 1958. Athol Wallis, of Scarborough, was elected Chairman for the coming year.

The 1959 Vertebrate Section meetings will be held in the General Lecture Theatre (Baines Wing), Leeds University, on March 21st and October 10th. The entrance is in University Road.

A. H. B. Lee (*Convener*)

BIRD MIGRATION COURSE AT GRANTLEY HALL ADULT COLLEGE, 14th-16th November, 1958

Bird Migration was the subject of a course arranged in conjunction with the Yorkshire Naturalists' Union and the British Trust for Ornithology at Grantley Hall Adult College, near Ripon, over the week-end of 14th to 16th November, 1958. It was attended by 55 ' resident ' students and several more day visitors from Yorkshire and farther afield.

Mr. Kenneth Williamson, Migration Research Officer of the British Trust for Ornithology, opened the course on the Friday evening with a fascinating address on Weather Systems and the interpretation of weather maps, linking this with his now well-proved concept of ' drift ' migration, and he spoke again on the Saturday evening on Island Ringing Stations with particular reference to Fair Isle and the part Bird Observatories could take in co-ordinated observation of migration. Mr. Robert Spencer, the B.T.O. Ringing Secretary, gave two papers, one on the place of ringing in the study of migration in which he drew attention to the depressingly few ringing recoveries from Africa, the wintering quarters of the bulk of our summer migrants; his second paper about inland ringing stations included an outline of the work done by Major-General C. B. Wainwright at Abberton Reservoir, Essex, and the progress of the ringing station Mr. Spencer himself had established at Romford Sewage Farm. Dr. G. V. T. Matthews, biologist at the Wildfowl Trust, also gave two papers. ' Bird Navigation ' was the subject of his first and all attending the course derived great benefit from his lucid and humorous presentation of the most up-to-date theories and research into this highly complicated problem. Dr. Matthews' second paper was devoted to wildfowl migration and included a beautifully balanced summary of both sides of the never-ending argument about shooting, and, coupled with this, the problem of setting up wildfowl refuges. Sunday afternoon was devoted to ' Question Time,' the three speakers dealing with points raised by students on many aspects of migration, navigation and ringing.

The grounds of Grantley Hall were particularly rich in finches: a party of 12 Crossbills frequented the conifers about the Hall, two Hawfinches exhibited themselves during a coffee-break and Bramblings, Jays, Goldcrests, Coal and Marsh Tits, Heron, Redwings, Fieldfares and Nuthatches as well as commoner species were often seen or heard. On the Saturday afternoon, students scattered to various

localities, including the Washburn valley reservoirs, Gouthwaite, Leighton and Roundhill, and Sawley Fishpond. Whooper Swans, Canada Geese, Pintail, Pochard, Tufted Duck, Goldeneye, Red-breasted Merganser and Jack Snipe were some of the birds seen. The Ringing Secretary assisted in mist-netting at a Blackbird roost and helped to catch 18; a very large Starling roosting movement was observed near Fountains Abbey. Before dinner on Saturday evening, Mr. Edward Skinner showed some excellent colour slides of his visit to the International Ornithological Congress in Finland in June and of some birds at Spurn Bird Observatory.

The course dispersed after tea on Sunday and widespread fog enabled students and lecturers alike to acquaint themselves more practically on their homeward journeys with the full meaning of the words ' disorientation ' and ' drift '.

Grantley Hall, as usual, lent itself admirably to this type of week-end course, the facilities and comfort being far beyond those to which most bird-watchers are accustomed when ' week-ending ' away. The Union is most grateful to the Warden for all his assistance and co-operation.

A.F.G.W.

FIELD NOTES

A Hen-Harrier (*Circus cyaneus cyaneus*) in the Peak District.—The Hen-Harrier is an occasional migrant to the Peak District, and on September 16th, 1958, a female of the species was shot on Edale Moor. The bird was solitary. It was in excellent plumage and apparently in good health, though noticeably light in weight. The stomach, crop and intestines were absolutely empty, there being no trace of food whatever. According to the records the bird in this region is an autumn or winter migrant from October onwards. The present occurrence is therefore at an unusually early date, and the bird may have been shot shortly after arrival, before it had time to feed. It is a matter for regret that the appearance of an unusual bird should be the signal for its destruction.—R. G. Abercrombie.

***Corrigiola littoralis* in the Castleford Area.**—In late August, 1957, Mr. A. Pearson sent me specimens of a small plant which he had found on the railway track at Fryston. The plant was a complete stranger to me and despite information of the plant's native habitat as given in the latest Floras, I was unable to give it any other name than *Corrigiola littoralis*. After much writing and waiting, I finally obtained a permit to walk on the track of British Railways. This was in December, and as there had been some frost, the plants were in poor shape, but quite identifiable. On waste land near by there were small heaps of the plant which had been shovelled off the tracks.

This year, with the help of some British Railways' employees, I have been able to see *Corrigiola* in other places, all in ballast on railway tracks. It has recurred at Fryston and Hightown; Monkhill Station, Pontefract; Knottingley and Whitley Bridge. It does not seem to be at Goole, neither is it on the track approaching Baghill Station, which seemed possible as trains from Devon enter Pontefract at Baghill. However, I am still investigating this possibility.

The place to see *Corrigiola* in thriving abundance is on the track approaching Monkhill Station from Castleford, where it is fairly continuous for 100 yards, some of the mats being three feet wide. On October 23rd several of the flowers were opened wide, probably due to the bright sunshine, showing most effectively the attractive charm of this plant. I had not seen the flowers open previously, nor since, and apparently they are often cleistogamous. On the opposite side of the track several plants were lying withered, having been hoed out. As I picked them up showers of tiny nutlets rained into the ashes, augering well for next year. Weed killer has been used since 1954, but with little effect. Several platelayers and gangers are familiar with this ' weed ' and most regard it as a nuisance. They have known it for a varying number of years; it certainly appears to have been abundant in the district for at least six years.

Previous records for *Corrigiola*, other than at Slapton Ley and Helston, supplied to me by Cambridge, are: Weymouth (1890); Near Bath (1896); Blandford, Dorset (1885); Sandwich Bay, Kent (1932); Botanic Garden, Cambridge (1950); Barry Docks, Glamorgan (1927); Freshfield, Lancs. (first recorded 1927, but still there ten years later on railway ballast).—M. Pyrah.

THE YORKSHIRE NATURALISTS' UNION: NINETY-SEVENTH ANNUAL REPORT

The Ninety-sixth Annual Meeting was held on 7th, December 1957 in the Science Block of St. Peter's School, York, by kind permission of the Headmaster, J. Dronfield, Esq., at the invitation of the York and District Field Naturalists Society.

The Presidential Address entitled 'The Natural History of Malham Tarn' was delivered by P. F. Holmes, Esq., M.A.

The Presidency for 1959 has been offered to and accepted by H. Henson, Ph.D., D.Sc., F.R.E.S., of the Zoology Department, Leeds University.

The Excursions in 1959 will be to:

V.C. 61. Birdsall, June 6th.
V.C. 62. Kirby Moorside (Whitsun), May 16th-18th.
V.C. 63. Askern, July 4th.
V.C. 64. Bishop Wood, Selby, June 20th.
V.C. 64. Bowes for Greta Valley, weekend July 18th-19th.

Membership.

At the time of writing, membership of the Union comprises 2 Honorary Life Members, 15 Life Members, 385 Ordinary Members, 33 Family Members and 40 Affiliated Societies.

New Members.

Bartley, D. D., B.Sc., Ph.D., Botany Dept., The University, Leeds 2.
Bettison, J., 59 Welbeck Street, Sandal, Wakefield.
Boatman, D. J., Ph.D., Botany Dept., The University, Hull.
Booth, C. G., 'Moorview', Langbar Road, Middleton, Ilkley.
Booth-Thompson, Miss Clare, Huddleston House, Sherburn-in-Elmet, Leeds.
Bradshaw, Miss M. E., B.Sc., Dept. of Botany, University Science Laboratories, South Road, Durham.
Burtt, H. C., 1 Heath Avenue, Halifax.
Clarke, D. D., 21 Windsor Road, County Road North, Hull.
Cockram, C., Ph.D., 8 The Crescent, Linthorpe, Middlesbrough.
Collins, R. E., LL.B., 7 Primley Park View, Leeds 17.
Credland, A., 9 Ings Lane, Patrington, E. Yorks.
Crockford, W. A., 67 Davenport Avenue, Hessle, E. Yorks.
Dalby, Miss M., Westwick, 9 Cleasby Road, Menston, Ilkley.
Darlow, Miss Dorothy, 176 Barnsley Road, Dodworth, Barnsley.
Dicker, Mrs. Joan, Brook House, Sutton, Thirsk.
Drummond, Mrs. Elizabeth, Wass, Coxwold, York.
Drummond, David G. E. (F).
Evans, M. C. W., St. Ann's, Ecclesall Road South, Sheffield 11.
Gowland, Miss A. M., 678 Beverley High Road, Hull.
Hardcastle, K., 34 Fenton Street, Bradford 7.
Harrison, David L., M.A., M.B., B.Ch., F.Z.S., Bowerwood House, St. Botolph's Road, Sevenoaks, Kent.
Hartley, Miss Marie, (F), Coleshouse, Askrigg, Leyburn, Yorks.
Hewitt, Miss M. S., Oxley Hall, Weetwood Lane, Leeds 16.
Ingilby, Miss Joan, Coleshouse, Askrigg, Leyburn, Yorks.
Johnston, Miss Vera, 36 Moor Road, Leeds 6.
Lawrence, Ian C., 60 Cambridge Road, Linthorpe, Middlesbrough.
Lovis, J. D., B.Sc., Ph.D., Botany Dept., The University, Leeds 2.
Lyons, Donald, 55 Hill Top Road, Paddock, Huddersfield.
Mayall, K. M., F.R.F.P.S., 26 Grosvenor Avenue, Pontefract.
Medd, Mrs. T. F., (F), 5 Beech Avenue, Holgate, York.
Milner, N. E., 245 Beverley Road, Kirk Ella, E. Yorks.
Moorhouse, Robert, Wintersett Farm, Wintersett, near Wakefield.
Needham, Mrs. C. W. C., Gatesgarth, 17 Ainsty Grove, Dringhouses, York.
Parkin, L., 2 Britten Terrace, Halton, Leeds.

Parkinson, R. C., 23 Trafalgar Road, Ilkley.
Quin, P. C., 4 Alton Grove, Bradford 9.
Reid, W., 6 Whirlow Park Road, Sheffield 11.
Rhodes, Mrs. Freda M., 4 Chellow Terrace, Chellow Dene, Bradford 9.
Ridgway, Miss P., 43 West Ella Way, Kirk Ella, near Hull.
Riley, J. L., M.B., Ch.B., 15 Altar Drive, Bradford 9.
Shaw, Rev. C. E., Waterhead Vicarage, Oldham, Lancs.
Shaw, S., F.R.E.S., 29 Bocking Lane, Sheffield 8.
Slater, Margaret E. A., M.R.C.S., L.R.C.P., Topcliffe, Thirsk.
Smith, A. A., 9 First Avenue, Newton Hill, Wakefield.
Sykes, A. N., ' Thorpe End ' Almondbury, Huddersfield.
Tennant, D. J., ' Fairlea ', Wetherby Road, Scarcroft, near Leeds.
Townsend, G. M., 42 Lycett Road, Dringhouses, York.
Urquhart, Rev. D. C., M.A., Rowley Rectory, Little Weighton, Hull.
Wilson, Miss R. C., B.Sc., 10 St. Alban's Road, Halifax.
Windemer, Miss Olive, 64 Tewit Well Road, Harrogate.
Wright, D., Spring Hall Lodge, Denholme Gate Road, Shelf, near Halifax.

New Society

Milnesbridge Naturalists' Society, Hon. Sec., O. Godfrey, 908 New Hey Road, Outlane, Huddersfield.

Deaths.

It is with regret that we record the death of the following members:
Bayford, E. G., F.R.E.S.
Ilderton, The Rev. K.
Jackson, E. W., F.G.S.
Tomlinson, The Rev. C. F.
Wells, Mrs. E. M.

Resignations.

Ballard, L. C.
Elson, B. G.
Hemingway, G. E. C.
Kemp, J. K. C.
Smith, Miss Nancy.
Wrigley, T. C.

Change of Address.

Alderson, G. E., "Fairfield," St. Matthews Close, Leyburn, Yorks.
Appleyard, Mrs. J., Westonbirt School, Tetbury, Glos.
de Bartolome, J. F. M., 12 Thornsett Road, Sheffield 7.
Branson, F. E., 102 Chain Lane, Knaresborough.
Brierley, F., 38 Lawton Street, Primrose Hill, Huddersfield.
Burton, W. G., M.A., B.Sc., F.L.S., Ditton Laboratory, Larkfield, Maidstone, Kent.
Carr, Leonard, F.G.S., 283 Glossop Road, Sheffield 10.
Crosbie, K. C., Coupland Hall, Appleby, Westmorland.
Downer, C. S., 49 Downside Road, Headington, Oxford.
Forges, Graham des, Prospect Cottage, Balcombe, Sussex.
Govett, J. R., B.A., M.B.O.U., 14 The Rowans, Bramhope, near Leeds.
Griffith, F. C., ' Strathmore ', 3 Park Drive, Sprotbro', Doncaster.
Hague, J. B., 4 Northgate, Mexborough.
Haythornthwaite, Mrs. W. G., ' Low Garth ', Arkendale, Knaresborough.
Hemming, Mrs. Rachel, (*née* Rachel C. Wilson), 17 Windsor Drive, Dalton, Huddersfield.
Hunt, C. W., B.Sc., 2 Highland Avenue, Hanwell, London, W.7.
Imrie, Miss J. P., ' Heather Cottage ', Farnhill, Kildwick, near Keighley.
Smith, D. H., ' Somerdale ', Welton Road, Brough, E. Yorks.
Spittle, R. J., 32 Malvern Road, Powick, Worcester.
Yeoman, Miss K. P., Hannah's Garth, Osmotherley, Northallerton.

Change of Secretary.

The new Secretary of the Hull Scientific and Field Naturalists' Club is Mr. Brian Pashby, 3 Ann's Place, Napier Terrace, Hull.

MAMMALS, REPTILES, AMPHIBIANS AND FISHES

Mammals (Ellen Hazelwood): *Insectivora:* The Pigmy Shrew has been reported from Knaresborough, Barnsley and Huddersfield. Water Shrews have been added to the distribution list for Knaresborough and they are also reported from a ditch at Swallow Hill, Low Barugh; there appears to have been a decrease in the numbers of the species near Halifax and Mr. Morley suggests that this may be due to this year's heavy rains with the consequent higher water levels.

Chiroptera: The first Pipistrelle in the Knaresborough area where the Noctule also occurs was seen on February 28th. Two Noctules were seen flying near Thornton-le-Dale on May 5th and on June 27th five were seen. Mr. Beck reports that a bat was caught in a mist net at Pateley Bridge and from its description it may have been a Lesser Horseshoe; the bat was unfortunately released without having been submitted for identification. A belated record has been received of a Noctule (13 in. wingspan) taken at the top of Hollings Hill, Bradford, in the winter of 1957; the specimen is preserved in the Cartwright Memorial Hall Museum at Bradford. Several bats, probably Pipistrelles, have been observed flying in upper Dodworth Road, Barnsley, where they live in the stones of a railway bridge. Two Long-eared Bats roost in a nest box in Scaba Wood, Doncaster.

Lagomorpha: Rabbits appear to be once more on the increase over the county as a whole. There is a report of an outbreak of myxomatosis between Knaresborough and Ripon in the spring but it did not become widespread. Slight outbreaks have also been reported from Kirkburton and from Whitley Hall in the Huddersfield area. Hares appear plentiful everywhere and to be on the increase.

Rodentia: The Red Squirrel used to be common around Knaresborough but it completely disappeared for many years. This year one was captured alive at Plompton but it may be one of two which escaped from captivity a year ago. An interesting note comes from Mr. Morley who, in the spring, watched the building of a drey in a pine at Walshaw Bridge in Hardcastle Crags. In late July the tenant of the Gibson Mills refreshment rooms there told him that early one morning as she opened her door five squirrels were playing on the tables outside. Does it concern the same family of squirrels ? Red Squirrels are again recorded widely from the Barnsley area where one animal is seen regularly in the grounds of the School of Art in Churchfield and is believed to inhabit a disused dovecote in the Fairfield House garden. It is also recorded from New Miller Dam Woods, Wakefield, Bretton Hall and Ingleton.

The Grey Squirrel is reported to be fairly common in Gledhow Valley (3 miles from the centre of Leeds) and to have been seen also in Meanwood Valley and at Golden Acre Park. This year there are two squirrel reports which are of particular interest. In February Mr. C. V. Horrocks saw what he describes as a black squirrel in Deffer Wood where the Red Squirrel is common; this observation would appear to be of the dark form of the Grey Squirrel. The second record is of a Malabar Squirrel seen on August 12th and subsequently in the neighbourhood of Hunslet Cemetery, Leeds, where there are beech and oak trees. The nearest woods are in Middleton Park about a mile away.

An increase in the number of Short-eared Owls on the moors near Halifax appears to have taken place and Short-tailed Field Voles have been found in the nests; one wonders whether there may have been an increase in the number of voles though there is no record of such for that area. Mr. Fryer reports Water Voles to be very definitely much more common in the Huddersfield-Ashton canal from Golcar to Slaithwaite since it was closed for navigation. It is also listed from Brook House Dam, Shelley, and the Elland-Brighouse Canal. On the other hand Water Voles would seem to have disappeared from the waterways around Thornton.

Carnivora: The Fox is freely reported from all over Yorkshire. Badgers seem to be holding their own, despite persecution in the localities previously mentioned. An interesting new record is of a cub about a fortnight old having been killed by a dog at Brockholes near Huddersfield. There is also a sett in Sinking Wood, New Mill. Badger setts have also been found in Kexborough Wood near Barnsley.

An Otter is probably frequenting the canal between Brighouse and Elland. Anglers put in some bream last September, some of which were later found dead bearing injuries consistent with having been caused by an Otter. Trout similarly mutilated were seen dead at Ingbirchworth. Spraint including fish head, tail, scales

and teeth was found on a stone at the edge of the canal by Mr. Aubrook. An Otter was reported in the press from Horbury; both reports may refer to the same animal. An Otter was shot at Low Barugh at the end of August, and one is reported from Thrybergh Reservoir, near Doncaster.

A Stoat carrying a dead mouse was seen in Silkstone Fall Wood, Barnsley, in February. Mr. Beck of Knaresborough comments on the scarcity of stoats since the myxomatosis epidemic.

Ungulata: About six fallow deer live in Greno Wood and Wharncliffe Chase near Sheffield and local farmers are demanding that they be shot as they damage the crops. They are said to have escaped from herds on the estates of the Earl Fitzwilliam and Earl of Wharncliffe.

Cetacea: A Porpoise was washed ashore at Kilnsea early in May. On January 4th the body of a Common Porpoise was seen on the Humber Bank just south of Welton Water; it measured 3 ft. 4 in. from tip of snout to tail. Its injuries were consistent with having been done by the screw of a ship.

Amphibia: Frog spawning appeared to be very late this year; March 29th at Delby and April 1st in the disused cressbeds at Keld Head. Pairs of Common Toads were in the disused cressbeds at Keld Head on April 21st, also at a later date.

Reptilia: Slow-worm and Common Lizard have been seen near Knaresborough. A Common Lizard was found under a bucket in a garden in upper Dodworth Road on the outskirts of Barnsley. Slow-worms are also recorded for Lindley Wood, Washburn Valley, Otley.

Pisces: A member of the Slaithwaite Angling Club caught a Trout weighing $3\frac{3}{4}$ lb. in a pond at Farnley Tyas near Huddersfield. A Trout weighing $4\frac{3}{4}$ lb. was caught at Boroughbridge in the River Ure on March 28th; this fish is the best Trout caught in the district for many years.

River Lampreys were spawning in the Swale at Asenby below Topcliffe in April and at Cowthorpe on the River Nidd about the same time.

In conclusion, may I thank the following naturalists who have so kindly co-operated in making possible this report and express the hope that even more will join the band of observers before another year passes.

Messrs. B. Beck (Knaresborough), E. W. Aubrook (Huddersfield), R. S. Atkinson (Barnsley Naturalist and Scientific Soc.), B. Pashby (Hull), A. Pilkington (Barnoldswick), R. M. Green (Kexborough), G. Teasdill (Guiseley), J. H. Flint, E. C. Sterne, C. Bairstow and J. R. Govett (all of Leeds), G. Fryer (Huddersfield), I. Morley (Halifax), R. M. Garnett (Thornton-le-Dale) and Col. G. Brownlow (Ipswich).

ORNITHOLOGY

Interim Report (Ralph Chislett): At the meeting on March 15th, Mrs. Grace Hickling spoke on ' The Grey Seal of the Farne Islands ' to an appreciative audience; and Mr. P. J. Stead on ' The Bird-life of Teesmouth.' The Report for 1957 was presented, approved and afterwards published in *The Naturalist* and separately.

The early months of 1958 were cold, with many snowfalls, after which we had a wet spring and a not-too-successful nesting season. Difficulty in finding food apparently caused many nests to be abandoned in April. Several people reported nests for second layings built on abandoned first nests. A pair of Ravens reared a brood, and one young Peregrine Falcon was reared. Many people reported scarcity of Cuckoos; the general use of insecticides was one suspected cause of the scarcity.

Crossbills arrived on the coast and inland in early July. The new Scaling Dam is attracting ducks and other birds; the occurrence there of a Red-necked Phalarope in September was probably an aftermath of the unusually great drift migration of early September. This drift from east affected all our coasts. Pied Flycatchers and Redstarts, Wheatears and Whinchats, Willow and Garden Warblers, and Wrynecks occurred in coastal areas in unusually large numbers. The inclusion of a number of Bluethroats and several Icterines, Red-breasted Flycatchers and Red-backed Shrikes confirmed the origin of the movement as north-continental. A Rustic Bunting in the Doncaster area on September 14th was also probably one of the aftermaths.

The Spurn Peninsula was much affected and the Observatory, in early October, passed its previous largest total of birds ringed in any year (3,514 in 1951) with

nearly three months still to go. This has been due to the abnormal ringing of linnets, Snow-Buntings and other finches in the period January to March, and to events in early September. Part I of *The Birds of the Spurn Peninsula* has been published by the Union's publishers.

At the meeting of the two Vertebrate Sections on October 11th, the Chairman (E. S. Skinner) spoke of the International Ornithological Congress held in Helsinki in June which he attended, and showed slides in colour of birds, scenes and people. John Armitage spoke on 'Some Reptiles and Amphibians' with an amazing collection of hand-coloured slides, and was described by Arthur Gilpin as the most difficult man in England to follow, when he (A.G.) dealt with 'The Goshawk and some other Danish Birds', illustrated by a fine set of his own slides.

At a week-end meeting at Grantley Hall from November 14th to 16th, the present state of our knowledge of bird migration was discussed in co-operation with the B.T.O.

Items for the 1958 Report are coming in nicely and it is hoped that as many records as possible will reach me before the year end, and the remainder not later than January 15th.

CONCHOLOGY

(Mrs. E. Morehouse): Conditions during 1958 have been varied for collecting. One or two members have had some success but on the whole the year has not produced any outstanding records.

Mr. Appleyard found *Helix pomatia* L. in Castle Hill quarry, Stapleton. It was introduced here about three years ago when Mr. J. Armitage gave some to Mr. Ballard who released them in the quarry as a suitable habitat. It occurs naturally on the South Downs and in Gloucestershire.

A visit to Forge Valley under weather conditions not ideal for collecting mollusca yielded fifteen terrestrial snails and three slugs. These included the amber variety of *Succinea putris* L. together with fine specimens of *Pomatia elegans* Müll., *Ena obscura* Müll., and *Vitrina pellucida* Müll.

On the Y.N.U. excursion to Settle, *Helix itala* Müll. was seen in several places and 18 terrestrial species and five slugs were identified including *Arion ater* var. *plumbea* Roebuck. At Roche Abbey very few records were made though *Balea perversa* L. was seen. The Grassington excursion of the Yorkshire Conchological Society was disappointing. This area is one of the richest for snails in Yorkshire but the glorious summer day was unsuitable for collecting mollusca and only 13 terrestrial and two freshwater species were found and one slug. The Y.C.S. excursion to Ryhill Reservoir however yielded a most interesting collection. Master Barry Dearing found *Vivipara contecta* Mill., *Unio pictorum* L. and *Anadonta anatina* L. in a muddy stream leading into the Reservoir. Mr. E. Thompson found *Neritina fluviatilis* L. and *Sphaerium rivicola* Leach by the Reservoir, also *Aplecta hypnorum* L. from Hambleton near Selby, *Ena obscura* Müll. from Fairburn, *Planorbis crista* L. from Grange Moor, *Unio tumidus* Retz. and *U. pictorum* L. from Wintersett, and *Valvata piscinalis* Müll. from Nostall Lake.

Mr. Wakefield reports *Balea perversa* L. at Gunthwaite and in old ironstone workings at Emley. *Clausilia bidentata* Ström was found in association with it. *Acroloxus lacustris* L. was taken by the lake in Cannon Hall Park.

ENTOMOLOGY

(J. H. Flint): A summer that had more than its share of rain, naturally affected collecting adversely at times but it has been an interesting year as the reports below testify. Conditions during June, July and August were often warm as well as moist, and, with little wind, produced ideal conditions for the flight of many insects. These favourable conditions were probably responsible for the number of records of insects, particularly beetles, that in many instances are normally hard to find. The Section was poorly represented at Union field meetings, but a successful meeting was held in the spring at Huddersfield to hear papers by Mr. A. Brindle and Mr. G. E. Hyde. The party of members of the Section that has been engaged for the past five years on a survey of the insects of the Malham Tarn district has now completed its work.

The reports show that the Lepidoptera have been well worked by members

during the year and that there has been some revival in the Coleoptera. Among the less worked orders there remains plenty of scope and it is particularly pleasing to see the work of members on the Trichoptera, Hymenoptera (Symphata) and Diptera (Agromyzidae). The customary symbols are used to denote additions to the county lists (†) and vice-county lists (*).

Lepidoptera (F. Hewson): That the spring and summer were poor was agreed by all correspondents, who only differ in slight degree. W. E. Collinson, in his report to the Halifax Scientific Society, considers this the third successive poor summer; R. S. Pollard, of the Scarborough Naturalists' Society, the second in succession, whereas I should have said the fourth. Many districts have had more rain or less sunshine than in comparable periods over many years or even decades, and the scarcity and lateness of first broods of butterflies were very noticeable. But although August brought little if any improvement in weather a remarkable immigration of various species occurred. The micro *Plutella maculipennis* Curtis (Diamond Backed) came in unpredecented numbers, Vanessid butterflies and Plusiid moths were more abundant than for many years, setting at rest the fears that the lepidopterous population would take some years to recover from a succession of wet summers. Judging by the volume of reports lepidopterists have had their most interesting year for a long time.

Key to Initials.—J. Armitage; E. W. Aubrook; M. D. Barham; W. Beck; J. Briggs; W. E. Collinson; P. C. Forder; E. F. Gilmour; C. R. Haxby; A. M. R. Heron; F. Hewson; J. Hudson; S. M. Jackson; D. Lyons; R. S. Pollard; W. Reid; C. M. Rob; C. I. Rutherford; C. Scott; J. H. Seago; S. Shaw; S. R. Shaw; C. C. Smith; P. Tannett; L. G. F. Waddington; D. Wade.

Pararge aegeria L. (Speckled Wood). In good numbers at Bishop Wood, Selby, 8 and 9; S.M.J.

Eumenis semele L. (Grayling). As in 1957 one only seen in the usual locality near Selby; S.M.J.

Coenonympha tullia Mueller (Large Heath). Fresh males in fair numbers on Hatfield and Thorne Moors, 28/6, later than usual; S.M.J.

Vanessa atalanta L. (Red Admiral). Scarce at Scarborough, one report in spring and only in moderate numbers from 28/8 and throughout 9; R.S.P. Much increased numbers at Knaresborough, Harrogate, Leeds, Bradford, Huddersfield, Wakefield, Doncaster, Wath-on-Dearne, Thirsk, Selby and Spurn.

V. cardui L. (Painted Lady). Wakefield; A.M.R.H. One at Huddersfield; S.R.S. One at Huddersfield, early 9; R.C. In good numbers at Knaresborough, 8 and 9; W.B. In good numbers near Selby, 8 and 9; S.M.J. A few at Wadworth Wood and one in my own garden at Doncaster; L.G.F.W. Quite common at Wath-on-Dearne mid-8 to mid-9, last seen 27/9; J.H.S. More numerous than in any year since 1951, Scarborough; R.S.P. Large numbers at Bradford; C.S. Leeds, two, P.T., one M.D.B.

Nymphalis io L. (Peacock). Widely scattered and reported by most observers as more than usually common.

Hamearis lucina L. (Duke of Burgundy Fritillary). Much scarcer at Pickering than usual; C.R.H.

Aricia agestis Schiff. (Brown Argus). Grassington; C.I.R. Common at Pickering in July, the emergence was late this year. The race occurring in this locality is distinctly larger than that at Arnside and Silverdale; C.R.H.

Pieris brassicae L. (Large White).
P. rapae L. (Small White).
P. napi L. (Green Veined White).
} First brood very low in numbers, second brood about normal.

Colias croceus Geoff. in Fourc. (Clouded Yellow). A male seen flying almost due west from Spurn Point at 11-45 a.m., 17/8, the first I have seen since 1949. At Hedon on 30/8 I had reliable information of one recently seen. At Skeffling, 31/8, netted five males and saw at least another six; D.W.

Gonepteryx rhamni L. (Brimstone). One male seen at Wath-on-Dearne, 15/8; J.H.S. C.R.H. was informed that numbers were down at Askham Bog, where it appeared to have been on the increase for some years. There is a rumour of a collector having taken forty specimens in the bog last year, a most reprehensible proceeding.

Nola cucullatella L. (Short-Cloaked). Wakefield, M.V., two 8/7; A.M.R.H.

Nonagria typhae Thun. (Bulrush Wainscot). Pickering, M.V., one female 6/9; J.B. Harrogate, M.V., 6/9; C.I.R. A female at light at Brayton Barff on 13/9, although the nearest bulrushes are a mile away, where I have found it frequently; S.M.J.

Rhizedra lutosa Huebner (Large Wainscot). Harrogate, M.V., 4/9; C.I.R.

Xylophasia scolopacina Esper (Slender Brindle). Wath-on-Dearne, M.V., two 15/7; J.H.S. Triangle, Halifax, M.V.; W.E.C. Very common at Sheffield, including very dark forms; W.R.

Hydraecia petasitis Doub. (Butterbur). Harrogate, 31/8/57. Copgrove, two; C.I.R. Four noted on the foodplant, two miles from Selby, 21/8; S.M.J.

H. ophiogramma Esper (Double Lobed). Harrogate, M.V., 8/8; C.I.R.

Heliothis peltigera Schiff. (Bordered Straw). Bradford, M.V., 2/5; J.B. The sixth Yorkshire record.

Euxoa tritici L. (White Line Dart). Skipwith Common, M.V., one 10/8; J.B.

Agrotis vestigialis Hufn. (Archer's Dart). Skipwith Common, M.V., one 10/8; J.B.

Spaelotis ravida Schiff. (Stout Dart). Bradford, M.V., 2/9; J.B. The latter three are regarded as coastal species.

Diarsia florida Schmidt. Skipwith Common, one 4/7; S.M.J.

Anaplectoides prasina Schiff. (Green Arches). Harrogate, M.V., 12/7; C.I.R.

Brachionycha sphinx Hufn. (Sprawler). Near Tadcaster, one 2/11/57; S.M.J.

Anchoscelis lunosa Haworth (Lunar Underwing). Strensall Common, M.V.; C.I.R.

Tiliacea citrago L. (Orange Sallow) and

Cirrhia gilvago Schiff. (Dusky-Lemon Sallow). Skipwith Common, 3/9, one of each although there appear to be no lime or elm trees; S.M.J.

Cucullia umbratica L. (Shark). Knaresborough, M.V., 18/7; W.B.

Antitype flavicincta Schiff. (Large Ranunculus). Wakefield, M.V., 15/9; A.M.R.H.

Leucania straminea Treit. (Southern Wainscot). Skipwith Common, M.V., one 6/7; J.B.

Hadena suasa Schiff. (Dog's Tooth). Harrogate, M.V., 31/5; C.I.R. Skipwith Common, two 4/7; S.M.J.

Heliophobus saponariae Bork. (Bordered Gothic). Wombwell; J.H. Wath-on-Dearne, M.V., one 5/7; J.H.S.

H. albicolon Huebner (White Colon). One S.W. of Selby, 29/6, the first I have taken away from the coast. A dark form; S.M.J.

Zanclognatha tarsipennalis Treit. (Fan-Foot). Headingley, Leeds, 8/7, 17/7; C.C.S.

Z. nemoralis Fab. (Small Fan-Foot). Taken in a wood south of Selby, 18/6; S.M.J. Harrogate, M.V., 12/7; C.I.R. Wakefield, M.V., 29/6, 9/8; A.M.R.H.

Plusia bractea Schiff. (Gold Spangle). Knaresborough, M.V., two 11/7; W.B. Shipley, M.V., 18/7; F.H. Skipwith Common, M.V., 9/8; C.R.H. Scarborough, two, consecutive nights (only one previous local record, at Cayton Bay in July, 1917); R.S.P.

Sterrha virgularia Huebner (Small Dusty Wave). Harrogate, M.V., 12/7; C.I.R.

Eupithecia albipuncta Haworth (White-Spotted Pug). Bred 14/6, the first time I have found it at Selby. Two more larvae found 14/9; S.M.J.

E. satyrata Huebner (Satyr Pug). Harrogate, M.V., 29/5; C.I.R.

E. castigata Huebner (Grey Pug). Harrogate, M.V., 14/6; C.I.R.

E. virgaureata Doub. (Golden Rod Pug). Taken at Scarborough for the first time; R.S.P.

E. abbreviata Stephens (Brindled Pug). Bishop Wood; C.I.R.

E. exiguata Huebner (Mottled Pug). Harrogate, 14/6; C.I.R.

Thera obeliscata Huebner (Pine Carpet). Wakefield, M.V., 19/9; A.M.R.H.

Lampropteryx suffumata Schiff. (Water Carpet). Harrogate, M.V., 12/6; C.I.R.

Hydrelia flammeolaria Hufn. (Small Yellow Wave). Bishop Wood and in a wood south of Selby, 18/6; S.M.J.

Orthonama vittata Bork. (Oblique Carpet). Skipwith Common, M.V., one 6/7; J.B.

Biston betularia L. (Peppered). Four typical at Bradford this year; J.B.

Ellopia prosapiaria L. (Barred Red). Harrogate, M.V., 12/7; C.I.R.

Selenia lunaria Schiff. (Lunar Thorn). Harrogate, M.V., 14/6; C.I.R.

Hygrochroa syringaria L. (Lilac Beauty). Harrogate, M.V., 19/7; C.I.R.

Cepphis advenaria Huebner (Little Thorn). One worn female taken in South Yorkshire, ova obtained and I now have eight healthy pupae; S.M.J.

Ennomos quercinaria Hufn. (August Thorn). Pickering, M.V., nine 13/9; J.B. and C.R.H.

Tethea octogesima Huebner (Figure of Eighty). Wath-on-Dearne, M.V., one 5/7; J.H.S.

Macroglossa stellatarum L. (Humming Bird Hawk). *c.* three seen at dusk at Catton Hall, Thirsk, 29/8, and later one about 11-30 a.m.; C.M.R.

Hippotion celerio L. (Silver Striped Hawk). One was taken from the window frame of a house at Great Ouseburn, 1/10; P.F. One was found by Mr. West, of Rose Grove, Wombwell, on his window-frame, 2/10; J.H.

Deilephila porcellus L. (Small Elephant Hawk). Wakefield, M.V., one 29/6; A.M.R.H. Reasonably common at Sheffield; W.R.

Celerio galii von Rott. (Bedstraw Hawk). At Leeds during August, Robert Dickenson, aged 11, and Peter Allcock, aged 12, found three full grown larvae on Rosebay on waste ground near Glasshouse Street (within half a mile of the spot where six were found in 1955). Altogether eleven larvae were found about there and Miss B. Pickersgill found a large larva on Rosebay by the fringe of the Alwoodley Golf Course; J.A. Eleven larvae were found between 29/8 and 2/9 at Heaton, Bradford, which is not far from the Bradford Grammar School mentioned in the 1955 report. On 5/9 five larvae were found at Eccleshill, Bradford, and about the same date one was found at West Bowling, Bradford; J.B. A larva was found at Dalton Grange, Rawthorpe, Huddersffeld, 5/9; E.W.A. A larva at Paddock, Huddersfield, early 9; D.L. It is hoped that the species may become established since larvae are being found on Willow Herb instead of the more usual Bedstraw, and some of the localities suggest that this is so.

Smerinthus ocellatus L. (Eyed Hawk). Knaresborough, M.V., two 29/5; W.B. A larva was brought into the Waterdale Museum, Doncaster, 1/9; E.F.G.

Acherontia atropos L. (Death's Head Hawk). A live specimen, found in an industrial area quite near the centre of Sheffield, was taken to the City Museum on 21/5; S.S. One was brought to the Waterdale Museum, Doncaster, 24/6; E.F.G. One picked up in an Ilkley back yard on 11/9 was sent to the Leeds City Museum; J.A.

Drymonia dodonaea Schiff. (Marbled Brown). Bishop Wood, Selby, one came to a Tilley lamp, *c.* 12-30 a.m., 15/7; C.S.

Pterostoma palpina L. (Pale Prominent). Bradford, M.V., 4/7; J.B.

Drepana binaria Hufn. (Oak Hooktip). Wath-on-Dearne, M.V., 30/8; J.H.S.

Lasiocampa quercus L. (? *callunae* Palmer). A larva found on the road at Selby pupated early in 6 and produced a moth on 9/7; S.M.J.

Zeuzera pyrina L. (Leopard). Skipwith Common, M.V., 10/8; J.B.

Plutella maculipennis Curtis (Diamond Backed). During May many of this species had been reported right across the north of England, but myriads were yet to come. R. S. Pollard, Recorder for the Scarborough Naturalists' Society, writes: ' On June 2nd occurred the incredible invasion of *Plutella maculipennis*, and in the few following days they appeared as far north as Shetland and as far south as Withernsea. They were literally in millions and this both in town and country. Several local farmers who omitted to spray lost all their swedes and kale. One farmer said he had seen nothing like it since 1929 or thereabout." J. Briggs reported: ' On the morning of June 30th *Plutella maculipennis* made a sudden appearance in my M.V. trap at Bradford, about thirty in number. . . Towards the end of July and early in August considerable damage was done to the *brassicaes* and wallflower plants by the larvae. Although not quite so bad as that done by the *Pierids* at their worst it was bad enough to disfigure growth. On an average seven or eight larvae were to be found on one cabbage leaf. The expected second brood did not appear, only very occasional ones turning up in the trap.'

And from J. H. Seago: ' This moth was first noted flying in my garden at Wath-on-Dearne in misty rain early in the morning of July 3rd. At lunchtime I was surprised to see large numbers at rest on bushes and plants. As each bush was tapped a hundred or so of the moths would fly out and the garden must have contained several thousands. At this period the rain had stopped but it set in again during the afternoon, ceasing again in the evening when large numbers were still present. The following morning the moths had greatly decreased in numbers and only about half a dozen could be found. Several friends reported seeing large numbers of a small moth in their gardens on the same day, and I can only assume that the whole phenomenon represented a

halt during a migration, though it must be admitted that no marked directional movement was noted.'

Coleoptera (S. Shaw): The following list of 61 species includes 2 species which are new to the county and 9 species which are new to a vice-county. Many of the beetles collected this year are of special interest in that they are rare or local species which, although known from Yorkshire, have not been noted from the county for many years.

Key to Initials.—J. Armitage; L. C. Ballard; J. H. Elliott; Mrs. H. E. Flint; J. H. Flint; A. R. Foorth; E. F. Gilmour; W. D. Hincks; J. Newton; Miss J. Parkin; S. Shaw.

Notiophilus rufipes Curt. (64). Golden Acre Park, Leeds, among leaves in woodland, 6/10/58; J.H.F. Only four previous records for Yorkshire, three for V.C. 64 and one for V.C. 63.

Clivina collaris (Hbst.) (61). Buttercrambe, banks of Derwent, 22/5/58; abundant, J.A. and J.P.

Bembidion redtenbacheri Dan. (64). Banks of Wharfe, Bolton Abbey, 23/5/57; J.P. (det. J.H.F.).

**B. rupestre* (L.) (61). Kirkham Abbey, on sandy ground, 5/7/58; H.E.F. Now recorded from all the vice counties but is nowhere a common species except on moorland streams in the West Riding.

Trechus secalis (Pk.) (64). Castley Ford, Pool, several in flood refuse, 2/7/58; J.N. and J.H.F.

Lasiotrechus discus (F.) (64). Castley Ford, Pool, several in flood refuse, 2/7/58; J.N. and J.H.F. There are only three recent Yorkshire records for this species.

Anisodactylus binotatus (F.) (61). Strensall Common, 21/4/58; J.A.

Amara fulva (Deg.) (61). Kirkham Abbey, on sandy ground, 5/7/58; H.E.F.

Hygrotus inaequalis (F.) (64). Barnbow, near Leeds, 14/8/57; J.H.F.

Hydroporus umbrosus (Gyll.) (64). Bramhope ponds, Leeds, 24/10/57; in sphagnum around edges of ponds, J.H.F. Well known in this V.C. from Askham Bog, but little recorded elsewhere in Yorkshire.

Helophorus nubilus (F.) (64). Wike, near Leeds, 7/57; J.H.F. The last record for this species was 7/9/31 from Yedingham (62).

Cercyon lateralis (Msh.) (64). Malham Tarn Fen, in carrion, 7/56; J.H.F.

Cryptopleuron crenatum (PZ.) (64). Harewood Bridge, in flood refuse, 2/50; J.H.F. This is the third Yorkshire record, the previous two records being from Penyghent (64) and Kearby (64).

**Catops nigrita* Er. (64). Wothersome, Thorner, 6/58; J.H.F. This uncommon species is now recorded from all the V.C.'s except V.C. 65.

**Leiodes litura* Steph. (64). Golden Acre Park, Leeds, 11/7/58; J.H.F. Previously known from Yorkshire by three old records V.C. 62.

Stenichnus collaris (Muell.) (64). Golden Acre Park, Leeds, in grass tufts, 1/12/57; J.H.F.

**Scaphidium quadrimaculatum* Ol. (61). Allerthorpe Common, 31/7/58; J.A. (det. J.H.F.).

Scaphisoma boleti (PZ.) (64). Wike, near Leeds, 27/3/55; J.H.E. (det. J.H.F.).

Eusphalerum minutum (F.) (61). Kirkham Abbey, abundant in heads of *Scirpus sylvaticus* L., 5/7/58; H.E.F.

Lesteva monticola Kies. (64). Buckden Ghyll, 7/6/56; J.P. (det. J.H.F.).

L. fontinalis Kies. (64). Settle, 27/9/56; J.P. (det. J.H.F.). Introduced as new to the county in 1952 from Settle and Horton-in-Ribblesdale areas.

L. pubescens Mann. (63). Hardcastle Crags, 27/9/56; J.P. (det. J.H.F.). (64). Settle, 27/9/56; J.P. (det. J.H.F.).

Bledius opacus (Block) (61). Staxton Sand quarry, 8/6/58; J.H.F.

**Stenus picipennis* Er. (64). Woodhall Bridge, in flood refuse, 30/12/57; J.H.F.

Quedius maurus (Sahl.) (61). Skipwith Common, under bark of pine, 7/11/57; J.P. (det. J.H.F.).

Encephalus complicans West. (64). Alwoodley, 6/11/57; in grass tufts; J.H.F. Adel Moor, Leeds, 29/11/57; in grass tufts, J.H.F. Last recorded from this V.C. from Roundhay Park in moss on walls, in 1914.

Cantharis rufa L. (64). Breary Marsh, Bramhope, a specimen with entirely black elytra, 23/6/58; J.H.F.

Malthodes dispar (Germ.) (61). Kirkham Abbey, 5/7/58; J.H.F.

Thanasimus formicarius (L.) (64). Bishops Wood, near Selby, 5/6/58. Ten specimens caught emerging from a log in hot sunshine, J.A., J.P., A.R.F. The only recent record for V.C. 64.

Elater pomorum Hbst. (62). Duncombe Park, near Helmsley, several specimens in rotting ash bough, 12/12/57; J.A. Mr. Armitage first introduced this species as new to the county from this locality in the last Coleoptera report.

Melasis buprestoides (L.) (64). Arthington Bank, a single specimen in flight in hot sunshine, 15/6/58; J.H.F.; Chapel Allerton, Leeds, a well-established colony in an ash tree, 7/58; H.E.F.

Dascillus cervinus (L.) (61). Leavening, commonly in a chalk pit, 6/7/58; H.E.F.; (64) Etchell Crags, Thorner, in flight in hot sunshine, 29/6/58; J.H.F.; (62) Gundale, 10/7/58; A.R.F. (J.H.F.).

Laria dulcamarae Scop. (64). Fairburn Marshes, on *Solanum dulcamara* L., 8/57; J.H.F.

**Meligethes brevis* Sturm. (64). Etchell Crags, Thorner, a single specimen by sweeping *Helianthemum chamaecistus* Mill. in the evening, 16/6/58. Several subsequent visits failed to produce further examples; J.H.F. This rare beetle has previously been recorded from V.C. 62, Forge Valley, Scarborough, where it has been taken from beneath Scots Fir and on the following plants. *Thymus serpyllum* agg., *Brachypodium sylvaticum* (Huds.) Beauv., *Chenopodium* sp. and *Origanum vulgare* L.

†*M. subrugosus* (Gyll.) (61). Pocklington canal, 26/6/57; S.S. (and W.D.H.).

Soronia grisea (L.) (64). East Keswick, 17/5/56; J.H.F.

**Cryptophagus lycoperdi* (Scop.) (64). Saw Woods, Thorner, and Golden Acre Park, Leeds, in *Scleroderma aurantium*, 10/58; J.H.F.

Atomaria analis Er. (64). Golden Acre Park, Leeds, 1/12/57; J.H.F.

Mycetophagus piceus (F.) (64). Gledhow Valley, Leeds, in rotting oak stump, 7/58; H.E.F. This rare beetle has been recorded three times previously from the Leeds district. Records from the other V.C.'s are as follows: Beverley (61), Doncaster (63), Tankersley (63).

M. atomarius (F.) (64). Ilkley, 4/5/58; J.A.

Coccinella hieroglyphica L. (61). Allerthorpe Common, 1/5/58; J.P. The only two other records for this species in V.C. 61 are from Skipwith Common and Allerthorpe Common in 1894.

Narcerdes melanura (L.) (63). Beeston, Leeds, in a suburban garden, 1/7/58; J.H.F.

†*Ischnomera coerulea* (L.) (62). Rievaulx Abbey, 17/7/58; a single specimen, J.A. (det. J.H.F.).

Oedemera virescens (L.) (62). Gundale, near Pickering, three specimens 29/5/57; J.A. (det. J.H.F.). This species has only been recorded from V.C. 62.

Rabocerus gabrieli Gerh. (64). Malham Tarn Moss, on pine, 30/7/58; J.H.F. In Yorkshire this beetle has been beaten from oak, birch and pine.

Hallomenus binotatus (Quens.) (64). Gledhow Valley, Leeds, in rotting oak stumps, 7/58; H.E.F. Almost all of the Yorkshire records for this rare beetle are from the Leeds district.

Isomira murina (L.) (61). Scampston, in some numbers on Hogweed flowers, 6/7/58; H.E.F. Last recorded from Yorkshire in 1923.

Dorcus parallelipipedus (L.) (63). Womersley, 28/6/58; a single specimen, L.C.B. (det. J.P.).

Alosterna tabacicolor (Deg.) (63). Sandall Beat Wood, Doncaster, 29/6/58; two specimens; E.F.G. This is the only recent record of this very local beetle from V.C. 63.

Clytus arietis (L.) (64). Arthington Bank, in flight in hot sunshine, 15/6/58; J.H.F.

**Phymatodes testaceus* (L.) (63). Sheffield, 23/10/58; in printing tools made from beech from the Sheffield Corporation Printing Department.

Leiopus nebulosus (L.) (64). Etchell Crags, Thorner, several specimens, some recently emerged, from dead oak branches, 16/6/58; J.N.

Hydrothassa hannoveriana (F.) (64). Malham Tarn, 28-30/7/58; commonly on *Caltha* in Tarn Fen, along the edges of the inflow stream. A specimen was swept by Mr. A. Brindle, and a subsequent search by Dr. W. D. Hincks and Mr. J. H. Flint produced numbers of pupae and adults among liverworts at the roots of *Caltha*. This species has previously only been known in Yorkshire from very old records from the York district, the last record being 1842.

Mantura obtusata (Gyll.) (64). Breary Marsh, Bramhope, on *Rumex*, 23/6/58; J.H.F. There is only one old record for this species in V.C. 64 from Studley, Ripon.

Cassida viridis L. (62). Gundale, 10/7/58; numerous, J.P. (det. J.H.F.).

Omias mollinus Boh. (61). Sherburn Wold, 8/6/58; J.H.F.

Barypithes araneiformis (Schr.) (64). Castley Ford, Pool, Several specimens in flood refuse, 2/7/58; J.N. and J.H.F.

**Dorytomus dejeani* Faust (64). Breary Marsh, Cookridge, in grass tufts, 4/12/57; J.H.F. This weevil has only once previously been recorded from Yorkshire, from V.C. 63, Askern, 26/6/38, W.D.H.

Correction.—In the 1957 report *Leptusa norvegica* Strand was incorrectly reported as occurring at Malham. The species recorded should have been *L. fumida* (Erich.).

Hemiptera (J. H. Flint): The year has not been particularly good for collecting Hemiptera as the vegetation has so often been too wet for sweeping and it has been difficult to assess numbers. The impression has been that while many of the Heteroptera have thrived in the moist conditions, many of the Jassidae have been less plentiful among the grasses. Nevertheless some interesting species have been found during the year, and there are one or two outstanding records from previous years. There is one addition to the British list, one county addition and 16 for the vice-counties. Very few records and specimens have been received from other members of the Section, and except where stated the records listed below are those of the writer who is responsible for the determinations. There have been so few workers in the Hemiptera, particularly in the Homoptera, that the distribution of species within the county is but little known. Of some 430 species of Jassoidea and Chermoidea occurring in Britain, 226 have been recorded in Yorkshire. The influence of the late J. M. Brown, who lived for many years at Robin Hood's Bay, is easily apparent from the vice-county distribution, which is as follows: V.C. 61, 109 species; V.C. 62, 183; V.C. 63, 137; V.C. 64, 143; V.C. 65, 92. Of these, 38 have been added to V.C. 64 during the past five years, an indication of the field of activity of the present recorder, while only one each has been added to V.C. 61 and 62. Many of the species recorded for the first time in V.C. 64 will doubtless prove to be quite widely distributed.

Hemiptera Heteroptera

Zicrona caerulea (L.) (62). Darnholme, 16/6/58; H. M. Russell.

**Berytinus signoreti* (Fieb.) (64). Etchell Crags, Thorner, 7/58.

**Stygnocoris rusticus* (Fall.) (64). Shadwell, Leeds, under *Lotus corniculatus*, 9/9/54.

Trapezonotus arenarius (L.) (64). Adel Moor, Leeds, 29/12/57.

**Xylocoris galactinus* Fieb. (64). East Keswick, in flight in warm sunshine, 9/58.

**Loricula pselaphiformis* Curt. (64). Malham Tarn, Spiggott Hill Fen, 7/58.

**Charagochilus gyllenhalii* (Fall.) (64). Alwoodley Gates, Leeds, 7/58.

**Megaloceraea linearis* (Fuess.) (62). Cayton Bay, Scarbough, fairly common in woodland and grassy slopes on the cliffs, 8/58.

†*Bothynotus pilosus* (Boh.) (64). Malham Tarn Fen, a few males in the drier areas among *Calluna*, 7/58. A very local species in a few widely scattered localities in seven English counties and in Scotland.

Hemiptera Homoptera

**Doratura stylata* (Boh.) (64) Golden Acre Park, Leeds, 9/58.

Diplocolenus bensoni (China) (64). Malham Tarn, Spiggott Hill Fen and Tarn Moss, 7/58. This species was quite common but no specimens of the closely allied *D. abdominalis* (F.) were taken.

Psammotettix nodosus (Rib.) (64). Golden Acre Park, Leeds, 9/58. Only previously recorded in the county from Askham Bog and Coverdale.

**Limotettix striola* (Fall.) (64). Malham Tarn, on Ha Mire, 7/58. Previously recorded in Yorkshire only at Eshton.

**Cicadella notata* (Curt.) (64). Etchell Crags, Thorner, 8/58; Malham, 9/58. In both cases, in short limestone turf.

**C. cyclops* (Mats.) (64). Breary Marsh, Bramhope, 23/6/58. Previously recorded in Yorkshire only from Goathland and Mulgrave Woods.

‡*Empoasca strigilifera* Oss. (64). Golden Acre Park, Leeds, 9/55. A male of this species, and a female which is probably of the same species, were swept together from *Salix*. Subsequent visits have failed to produce more specimens and it may be that the species is established in the less accessible parts of the adjacent Adel Dam estate. First described in 1941, the species has been recorded from Sweden, Finland, North Germany and France.

**Stenocranus minutus* (Fab.) (64). Etchell Crags, Thorner, 31/8/58; Aberford, 19/10/58. In rank vegetation.

**Criomorphus moestus* Boh. (64). Alwoodley Gates, Leeds, 6/55. Three males of this species were taken from a short series collected as the more common *C. albomarginatus* Curt. which was present also. These insects were very numerous but it is not possible to say which species predominated and it is hoped to make a further collection in 1959. *C. moestus* is only recorded in the British Isles, so far as I have been able to trace at present, from Westmoreland and Ramsdale in Yorkshire.

**Aphalara calthae* (L.) (61). Kirkham Abbey, on *Rumex*, 5/7/58; Mrs. H. E. Flint.

**Chermes forsteri* (Flor.) (64). Malham Tarn Fen, on alder, 7/58.

**C. hartigi* (Flor.) (64). Malham Tarn Fen, on birch, 7/58.

**Newsteadia floccosa* (Deg.) (64). Malham Tarn Fen, in tufts of *Polytrichum*, 7/58; coll. and det. W. D. Hincks.

Orthopteroid and Neuropteroid Orders (Allan Brindle): On taking over the Union records for these orders in October, 1957, it was found that such a large amount of recording had been accomplished previously that it was obvious that most of the species likely to be found in the county had already been recorded. Due to several indexes covering the same orders it has not yet been possible to compile a complete list of the Yorkshire species except in the case of the Trichoptera. The information in the other indexes will be correlated in the future.

In the Trichoptera the list is extensive, though records are rather sparse in the Hydroptilidae in which family more species may be expected. Three new species have been added to the county list, and six to V.C. 64. 126 out of 189 British species are now recorded for the county, distribution in the vice-counties being V.C. 61, 44; V.C. 62, 86; V.C. 63, 73; V.C. 64, 101; V.C. 65, 44. It is of interest that of the 19 species below that are added to the Malham Tarn list, most are residents in the Tarn or neighbouring streams, only five being doubtfully resident or wanderers, *Limnephilus rhombicus* (L.), *L. stigma* Curt., *Stenophylax vibex* (Curt.) and *Lepidostoma hirtum* (F.), only single specimens of these having been taken. Except where stated, the records are those of the writer.

TRICHOPTERA

Colpotolaulius incisus (Curt.). Malham Tarn, 17/7/55.

Limnephilus rhombicus (L.) (64). Malham Tarn, 17/7/55.

L. stigma Curt. (64). Malham Tarn, 5/7/57.

L. elegans Curt. (64). Malham Tarn, 25/6/55.

L. auricula Curt. (64). Malham Tarn, 24/6/56.

L. extricatus McLach. (64). Malham Tarn, 25/6/55.

L. luridus Curt. (64). Malham Tarn, 25/6/55.

**Asynarchus coenosus* (Curt.) (64). Malham Tarn, 22/7/56, and on subsequent dates. This species is well established at the Tarn.

**Stenophylax infumatus* McLach. (64). Malham Tarn, 24/7/56. One male was swept from the Tarn edge by the inflow stream. Mosely (1939) states that this species may be disturbed from the overhanging edges of moorland peaty streams, and this describes exactly the occurrence of this specimen. No further example has been taken.

**S. vibex* (Curt.) (64). Malham Tarn, 8/56; W. D. Hincks. One specimen taken in Tarn House Plantation: probably a visitor as this species is a confirmed wanderer.

**Micorpterna sequax* McLach. (64). Malham Tarn, 25/7/56. One male taken at light. This species is also a migrant species, often being found far from any water.

Halesus digitatus (Schr.) (64). Malham Tarn, 9/10/55.

H. auricollis (Pict.) (64). Cowside Beck, Darnbrook Fell, 21/10/56.

H. guttatipennis McLach. (64). Cowside Beck, Darnbrook Fell, 21/10/56.

Lepidostoma hirtum (F.) (64). Malham Tarn, 31/7/58.
Beraea pullata (Curt.) (64). Malham Tarn, 24/7/56.
†*Beraeodes minuta* (L.) (64). Malham Tarn, 24/6/56. A small blackish species taken in some numbers along the inflow stream. It apparently has a short flight period which might have been the cause of its being overlooked in the past.
Odontocerum albicorne (Scop.) (64). Malham Tarn, 17/7/55.
Leptocerus nigronervosus (Retz.) (64). Malham Tarn, 18/6/55.
L. fulvus (Ramb.) (64). Malham Tarn, 28/8/55.
†*L. alboguttatus* Hagen. (64). Banks of the Ribble, near Grindleton, 8/7/57. A single specimen was taken by sweeping. It is reported to inhabit large rivers and may prove to be locally common along this river.
L. dissimilis Steph. (64). Grindleton, 8/7/57.
**Oecetis lacustris* (Pict.) (64). Bashall Eaves, 30/7/57. A few specimens taken at light by a small pond.
**Diplectrona felix* McLach. (64). Locally common near Whitewell, 30/7/56, and subsequent dates. This species is confined to woodland streams.
†*Cyrnus flavidus* McLach. (64). Malham Tarn, 20/7/56. The species is well established here. The specimens are all unicolorous yellow, and resemble those taken in the Lake District tarns. Normal English specimens are variegated.
Rhyacophila obliterata Steph. (64). Whitewell, 3/10/54.

Hymenoptera (W. D. Hincks): A prominent feature this season has been the abundance of caterpillars of sawflies which have been so much in evidence as to attract comment from non-hymenopterists. They were very numerous on roses, cultivated and wild, and were still feeding on these plants and on birch, hawthorn and alder as late as October 20th. On the other hand the weather this season has been such that suitable conditions to collect the sun-loving adults rarely occurred. The sawfly section of the Malham Survey however was completed during the season and includes 104 species from the small area under observation, an astonishing total of more than one-fifth of the British sawfly fauna. This achievement owes much to the assistance of Mr. R. B. Benson of the British Museum (Natural History) and I am also very grateful to Mr. H. N. Michaelis who reared several species not captured as adults during our visits to Malham. More information will be included in the forthcoming survey report on the Section's work at Malham but two species may be mentioned here. The larval mines of *Pseudodineura enslini* (Hering) on *Trollius europaeus* L. were discovered by Mr. H. M. Russell and later by Michaelis and myself. Hitherto this species has only been recorded from Scotland and is another instance of the important northern element present in the Malham fauna. *Nematus ponojensis* (Hellén) is brought forward as new to Britain by Benson in the final part of his *Handbook* published by the Royal Entomological Society earlier this month, on a female taken at Malham in 1955 and another from Scotland. Mr. Michaelis and I took a short series in August, including the first males which Mr. Benson has seen. This interesting species is North European and Siberian in distribution.

The publication of the long awaited final part of Benson's *Handbook*, relating to the difficult Nematine sawflies is an important occasion for the hymenopterist, and another major event of the year was the publication in January of Nixon's *Handbook* on the Proctotrupoid subfamily Belytinae. This publication has provided the means for identifying a number of species hitherto unrecorded from the county and together with identifications kindly made by Mr. Nixon himself provides a number of additions to our fauna.

A number of specimens of *Spathius pedestris* Wesmael, were detected in July by Mr. John Armitage, together with its host *Anobium punctatum* (Deg.), in the City Museum, Leeds, in an old tea box which had been received some two years before from Helmsley. This species has not been previously noted in Yorkshire, although its ally *S. exarator* (L.) is a widespread parasite of the same host.

The recorder's work on the Chalcidoid family Mymaridae has continued and his revision of the British species of *Alaptus* Hal., completed last year, should be published early in the new year. A second paper bringing forward a number of new British species, several being new to science, has also been completed.

Work is continuing on the other sections of the Malham Hymenoptera report and as would be expected this will include a number of new county and vice-county records. It has therefore been decided to postpone the task of preparing a list of new records until this report is published.

The thanks of the recorder are due to Messrs. R. B. Benson and G. Nixon of the Natural History Museum for help with identifications and to Messrs. Armitage and Michaelis and Mr. and Mrs. Flint for allowing him to examine their specimens.

Diptera (H. M. Russell): In spite of prolonged periods of bad weather throughout the season, the year cannot be said to have been a poor one from the dipterist's point of view. When fine periods have occurred the numbers of adult flies taken by sweeping have been quite up to the standard expected of a normal summer. This observation has been confirmed from material taken and seen in such localities as Scarcroft, near Leeds, the Goathland area of the North Yorkshire Moors and the Malham Tarn area.

The report contains 39 additions to the list of Yorkshire Agromyzidae and 8 vice-county additions to this and four other families of Diptera.

Asilidae

**Isopogon brevirostris* Mg. (62). Four males and one female swept from the fringes of woodland at Beck Hole, near Goathland, 17/6/58.

Dolichopodidae

**Dolichopus trivialis* Hal. (62). Fairly common by sweeping fringes of woodland at Beck Hole, near Goathland, 23/6/58.

**Gymnopternus cupreus* Fln. (62). Four males and one female, Darnholme, near Goathland, 15/6/58.

Platystomatidae

**Rivellia syngenesiae* Fab. (62). Fairly common by sweeping along the stream side at Darnholme, near Goathland, 17/6/58.

Sapromyzidae

**Lauxania cylindricornis* F. (62). Fairly common by sweeping under trees at Beck Hole, near Goathland, 17/6/58.

Agromyzidae

†*Agromyza albipennis* Mg. (64). Mines in *Phragmites communis* Trin. at Scarcroft, near Leeds. Adults emerged during April and May, 1956.

†*A. alnibetulae* Hd. (64). Larvae active in mines in *Betula pubescens* Ehrhart. at Tarn Fen, Malham, during July, 1956.

†*A. anthracina* Mg. (64). Larvae active in mines in *Urtica dioica* L. at Scarcroft, near Leeds, during July, 1956.

**A. demeijeri* Hd. (64). Adults reared from mines in *Laburnum*. Whitkirk, Leeds, July, 1957.

†*A. nana* Mg. (64). Fairly common at Newthorpe Quarries, Micklefield, during August, 1956. Mines in *Trifolium* sp.

†*A. reptans* Fall. (64). Adults reared from *Urtica dioica* L. taken in Tarn Close, Malham. Emerged 26, 27 and 28/8/58.

†*Phytobia* (*Poemyza* Hendel) *lateralis* Macq. (64). A single specimen by sweeping over grass at Scarcroft, near Leeds, during July, 1955.

†*P.* (*Poemyza* Hendel) *pygmaea* Mg. (64). Mines in *Phalaris arundinacea* L. Bardsey, near Leeds, 20/6/55.

†*Phytobia* (*Trilobomyza* Hendel) *verbasci* Bche. (64). Mines in *Verbascum thapsus* L. Aberford, near Leeds, August, 1955.

†*P.* (*Dizygomyza* Hendel) *bimaculata* Mg. (64). Swept from Tarn House Plantation, Malham, 14/8/55 and 7/9/57. Spiggott Hill Fen, Malham, 15/8/55 and 13/9/57. (The only previous British records are from the South of England.)

**Cerodonta fulvipes* Mg. (*spinicornis* Macq.) (64). A single specimen from Rawdon, near Leeds, August, 1956. Mines recorded from *Poa*.

†*Liriomyza amoena* Mg. (64). The spot mines of this species are to be found on *Sambucus nigra* L. Adults taken during June, July and August, 1956, in the Leeds area.

†*L. artemisicola* de Meij. (64). Mines in *Artemisia vulgaris* L. Thorner, near Leeds, August, 1955.

†*Liriomyza eupatorii* Kalt. (64). A single specimen swept from Tarn Fen, Malham, on 26/7/56. Previous records from the South of England only.

†*L. fasciola* Mg. (64). Mines common in *Bellis perennis* L. at Scarcroft, near Leeds, during August and September, 1955, and in the same food plant at Barnbow, near Leeds, during August, 1956.

†*L. valerianae* Hd. (64). Adults reared from mines in *Valeriana officinalis* L., taken from Tarn Fen, Malham. Specimens emerged during August, 1958.

†*Phytagromyza hendeliana* Hg. (64). Adults reared from mines in *Lonicera periclymenum* L. taken at Scarcroft and Bardsey, near Leeds, during June, July and August, 1956.

†*Ph. populi* Kalt. (64). Larvae active in mines in *Populus* × *canadensis* Moench. Leeds, 31/7/56.

†*Napomyza glechomae* Kalt. (64). Mines in *Glechoma hederacea* L. at Thorner, near Leeds, 12/6/57.

†*N. xylostei* Kalt. (64). Adults reared from mines in *Symphoricarpos rivularis* Suksdorf. taken from Tarn House Plantation, Malham. Specimens emerged during August, 1958.

†*Phytomyza analis* Zett. (64). One male and one female taken by sweeping. Spiggott Hill Fen, Malham, 13/9/57. (According to Spencer, K. A. (*in litt.*) this is the first British record of this species.) Life history unknown—probably a stem miner.

†*P. angelicae* Kalt. (64). Mines in *Angelica sylvestris* L. at Scarcroft, near Leeds, 23/6/56.

†*P. angelicastri* Hg. (64). Adults reared from mines in *Angelica sylvestris* L. taken from Far Tarn Fen, Malham, during July, 1956.

**P. anthrisci* Hd. (62). Adults were fairly common at Randy Mere, Goathland, on 23/6/58. Mines are to be found in *Anthriscus sylvestris* (L.) Bernhardi.

†*P. calthivora* Hd. (64). Larvae active in mines in *Caltha palustris* L. at Scarcroft, near Leeds, 5/7/57. Adults emerged 21, 22, 24/7/57.

†*P. calthophila* Hg. (64). Mines common in *Caltha palustris* L. in Tarn Fen, Malham, August, 1955, and September, 1957.

†*P. cirsii* Hd. (64). Adults reared from mines in *Cirsium* sp. taken at Scarcroft, Colton and Aberford, near Leeds, during August, 1957.

†*P. crassiseta* Zett. (64). Larvae active in mines in *Veronica* sp. at Bardsey, near Leeds, July, 1956, and at Scarcroft, near Leeds, August, 1957.

†*P. eupatorii* Hd. (64). Mines in *Eupatorium cannabinum* L. at Bardsey, near Leeds, August, 1955.

†*P. lappina* Gour. (64). Adults reared from mines in *Arctium* sp. taken at Scarcroft and Bardsey, near Leeds, during July and August, 1956.

†*P. luzulae* Hg. (64). Larvae active in mines in *Luzula* sp. at Scarcroft, near Leeds, June, 1957.

†*P. matricariae* Hd. (64). Mines in *Achillia millefolium* L., Thorner, near Leeds, September, 1955.

†*P. nigra* Mg. (64). A single specimen reared from an unidentified spp. of grass taken at Scarcroft, near Leeds, on September 8th, 1956. Adults reared from mines in *Holcus lanatus* L. (Yorkshire Fog) taken in Tarn Fen, Malham, during July, 1958.

†*P. obscure* Hd. (64). Larvae active in mines in *Mentha* sp. at Scarcroft, near Leeds, July, 1956.

†*P. obscurella* Fall. (64). Mines in *Aegopodium podagraria* L., Garforth, near Leeds, July, 1956.

†*P. periclymeni* de Meij. (64). Adults reared from mines in *Lonicera periclymenum* L., taken at Roundhay and Scarcroft, near Leeds, during July, 1957.

†*P. rufipes* Mg. (64). Larvae active in mines in *Nasturtium* sp. at Chapel Allerton, Leeds, June, 1955.

†*P. rydeniana* Hg. (64). Larvae active in mines in *Cirsium heterophyllum* (L.) Hill. near the Hill Inn, Chapel-le-Dale, July, 1957. Adults emerged during August, 1957. This species is fairly widespread in Far Tarn Fen, Malham.

†*P. sonchi* R-D. (64). This species is frequently noted as mining the leaves of various Compositae. Adults have been swept during August and September, 1957, at Scarcroft and Bardsey, near Leeds.

†*Phytomyza spondylii* R-D. (64). Mines fairly common in *Heracleum sphondylium* L. at Scarcroft, near Leeds, during June, 1954. Adults frequently swept in the same locality.

†*P. tanaceti* Hd. (64). Mines in *Chrysanthemum* sp., Whitkirk, Leeds, August and September, 1956.

†*P. taraxaci* Hd. (64). Larvae active in mines in *Taraxacum* sp., Garforth, Aberford and Whitkirk, near Leeds, July and August, 1956.

Plants Galls (E. F. Gilmour): Poor weather has not been conducive to field work during the year, and fewer plant galls than usual have been collected.

My grateful thanks are due to Miss C. M. Rob (C.M.R.) and Mr. F. E. Branson (F.E.B.) for continuing to send galls collected on their botanising expeditions.

	Agent	*Plant*
Hymenoptera	*Pontania proxima* (Lepel). (64). Roecliffe Brickworks, Roecliff, near Boroughbridge, 7/9/58; F.E.B.	*Salix atrocinerea* Brot.
	P. proxima (Lepel.) (64), River Ure, near Boroughbridge, 7/9/58; F.E.B. (61), Kirkham Abbey Woods, 5/7/58; C.M.R.	*Salix fragilis* Linn.
	Andricus quercus-radicis (Fabr.) (64), Barley Quarry, near Birstwith, 9/8/58; F.E.B.	*Quercus robur* Linn.
	A. curvator Hartig. (61), Kirkham Abbey Woods, 5/7/58; C.M.R.	*Quercus robur* Linn.
	Trigonaspis megaptera (Panz.) f. *renum* (Hartig.) (64), Barley Quarry, Birstwith, 9/8/58; F.E.B.	*Quercus robur* Linn.
	Neuroterus numismalis (Geoffr.) (64), Barley Quarry, Birstwith, 9/8/58; F.E.B.	*Quercus robur* Linn.
	N. quercus-baccarum (Linn.) f. *lenticularis* (Oliv.) (64), Barley Quarry, Birstwith, 9/8/58; F.E.B.	*Quercus robur* Linn.
	N. tricolor (Hartig.) (62), Beckhole, Goathland, 10/7/58; C.M.R.	*Quercus petraea* (Mattuschka) Liebl.
	Cynips divisa Hartig. (64), Barley Quarry, Birstwith, 9/8/58; F.E.B.	*Quercus robur* Linn.
Diptera	*Dasyneura epilobii* (Loew.) (64), Birstwith, –/9/58; F.E.B.	*Chamaenerion angustifolium* (Linn.) Scop.
	D. ranunculi (Bremi-Wolf) (64), Ripley, –/9/58; F.E.B.	*Ranunculus repens* Linn.
	D. urticae (Perris) (64), Ripley, –/9/58; F.E.B. (Common between Ripley and Nidd).	*Urtica dioica* Linn.
	D. crataegi (Winnertz) (64), near Boroughbridge, 7/9/58; F.E.B. Roecliffe Brickworks, Roecliffe, near Boroughbridge, 7/9/58; F.E.B.	*Crataegus monogyna* Jacq.
	Jaapiella veronicae (Vallot) (64), near Ferrensby, 7/9/58; F.E.B.	*Veronica chamaedrys* Linn.
	Wachtiella persicariae (Linn.) (61), Kirkham Abbey Woods, 5/7/58; C.M.R.	*Polygonum amphibium* Linn.
	Rondaniola bursarius (Bremi-Wolf) (61), Malton, –/7/58; C.M.R.	*Glechoma hederacea* Linn.
	Contarinia craccae Kieff. (64), Birstwith, –/9/58; F.E.B.	*Vicia sepium* Linn.
	C. scrophulariae Kieff. (61), Kirkham Abbey Woods, 5/7/58; C.M.R.	*Scrophularia aquatica* Linn.

Diptera cont.	*Pegohylemyia signata* (Brischke) (62), Beckhole, Goathland, 10/7/58; C.M.R. (61), Kirkham Abbey Woods, 5/7/58; C.M.R.	*Dryopteris dilatata* (Hoffm.) A. Gray
	P. signata (Brischke) (61), Kirkham Abbey Woods, 15/7/58; C.M.R.	*Dryopteris filix-mas* (Linn.).
Homoptera	*Myzocallis quercus* Kalt. (61), Kirkham Abbey Woods, 5/7/58; C.M.R.	*Quercus robur* Linn.
Acari	*Eriophyes laevis* Nalepa (61), Kirkham Abbey Woods, 5/7/58; C.M.R. (63), Sandall Beat Wood, Doncaster, –/7/58; E.F.G. (62), Beckhole, Goathland, 10/7/58, C.M.R.; (64), River Nidd, Birstwith, 2/9/58; F.E.B.	*Alnus glutinosa* (Linn.) Gaertn.
	E. sanguisorbae Can. (64), Ripley, –/–/58; F.E.B.	*Sanguisorba officinalis* Linn.
	E. tetanothrix Nalepa. (61), Kirkham Abbey Woods, 5/7/58; C.M.R.	*Salix atrocinerea* Brot.
	E. padi Nalepa (61), Kirkham Abbey Woods, 5/7/58; C.M.R.	*Prunus spinosa* Linn.
	E. tiliae Pagenst. (61), Kirkham Abbey Wood, 5/7/58; C.M.R. (64), Stiningford, near Tanfield, 18/6/58; C.M.R.	*Tilia vulgaris* Hayne.
Fungi	*Goniotherium fuckelii* Sacardo. (61), Kirkham Abbey Woods, 5/7/58; C.M.R.	*Rubus fruticosus* Linn.
	Ustilago utriculosa Nees. (65), Berryhills, near Kirklington, 17/10/58; C.M.R.	*Polygonum convolvulus* Linn.

BOTANY

(Miss C. M. Rob): The year has been another wet and cloudy one with little sunshine until late in the season. In many ways it was like 1957, but with generally higher temperatures. Early in the year the snow and frost of March made the spring flowering plants late and unlike most years this lateness has continued throughout the summer. The corn harvest has been one of the latest for many years.

Most flowering periods have been shorter than normal and many contributors to this report comment on the short life of cut flowers. In spite of the short season most plants have flowered well, hawthorn was well above average, but possibly owing to the wet season the flowers turned dark pink after a very few days, so much so that over much of the county the hedges appeared to be of ' Pink May '.

Trees have on the whole fruited well, a very different story from 1957. In particular Wych Elm (*Ulmus glabra*) carried a very heavy crop. Ash, Beech, Oaks, Rowan, Holly and Sycamore flowered very well and had a fruit crop above average. Brambles were plentiful but late, as were all fruits.

From all areas come reports of a good year for orchids. Near Skipton the Bee Orchid flowered well and has set an abundance of fruit. Small Twayblade (*Listera cordata*) flowered well on Blakey Rigg near Kirby Moorside. Records of white flowered forms have been plentiful, the most interesting being *Primula farinosa* near Arncliffe.

There has been a good representation of this section on field meetings, and useful contributions to the B.S.B.I. mapping scheme have been made. Following Dr. Sledge's appeal for more helpers in the scheme at last year's Sectional Meeting, there has been an increase both in workers and numbers recorded. The field work for the national scheme has, unfortunately, come to an end, but the section intends to carry on mapping in the county and is hoping to have at least one meeting each year in underworked areas.

The alien flora has had a great deal of work done on it in the year, especially in the Bradford area, and a most interesting paper by Mr. J. E. Lousley has appeared in *The Naturalist*. The list for the past season is long and includes many interesting species. Some of the plants are listed below, the remainder are in the Section files and are available for anyone interested.

There are many records of interest for the year. Dr. Piggott notes *Saxifraga hirculus* L. and *Myosotis brevifolia* C. E. Salmon on Micklefell, and the *S. hirculus* record is of special interest as it seems likely that the station in Baldersdale will be affected by the proposed reservoir, the site of which has been moved from Upper Teesdale to the Balder Valley. Mr. Sayer records *Glyceria declinata* Breb. from open cast spoil heaps at Grange Moor, a very unusual habitat. Mr. Magee has worked out the *Calystegias* in the Bradford area and finds the alien *C. silvatica* (Kit.) Griseb. outnumbers *C. sepium* (L.) R. Br. by about 10 to 1. This would seem to be the case throughout most of the county.

Actaea spicata L. is in danger of being smothered by bracken at Hayton Wood, Aberford, and has been bulldozed at Allerton Bywater where open cast coal workings are about to begin (the Rev. P. M. Garnett). Dr. Wegener has found *Torilis arvensis* (Huds.) Link. near York in V.C. 61 and Mr. Bunting reports the occurrence of *Silene maritima* at Thorne Colliery. Miss Crackles has three hawkweeds new to the East Riding. A field near Kirklington, V.C. 65, which had been dressed with shoddy has yielded a long list of adventives, many of them new to that vice-county, which, owing to its mainly rural character, has the poorest list of aliens of any of the five vice-counties of Yorkshire. Mr. A. W. Ping reports he has introduced plants of *Hottonia palustris* L. (Water Violet) at Moorlands nature reserve near York, where they are growing well.

Rabbits have reappeared in many places though there are also reports of renewed outbreaks of myxomatosis in several districts.

Plant Records (Miss C. M. Rob): A long list of records has been received and selection has been difficult especially in the case of alien and adventive plants. Those listed in J. E. Lousley's paper for the Bradford area are not included but records for *Senecio squalidus* L., *Epilobium nerteroides* Cunn. (*E. pedunculare* auct.) and *Veronica filiformis* Sm. appear as these three plants are now so well established that their spread in the county is of interest.

The following are some of the most interesting plants recorded in 1958:

Ceterach officinarum DC. (64). Giggleswick, a few plants; Settle, dozens of plants; J. N. Frankland. (65). Healey, near Masham; Mrs. J. Payne.

Pilularia globulifera L. (62). Strensall; D. J. Tennant. An interesting confirmation of an old record.

Ranunculus aquatilis L. subsp. *peltatus* (Schrank) Syme (64). Pond by River Wharfe, Woodhall, near Wetherby; D. J. Tennant.

R. aquatilis L. subsp. *pseudofluitans* (Syme) Clapham (61). Canal and River Hull, Wansford; E. Crackles.

Papaver lecoqii Lamotte (61). Levening, arable field; Y.N.U. Excurs., Malton.

Viola arvensis Murr. × *V. tricolor* L. (61). Winteringham, arable field; P. Gardam per E. Crackles, det. Kew.

Hypericum elodes L. (62). Still at Strensall Common; D. J. Tennant. Baysdale; J. E. Lousley and C. M. Rob.

H. maculatum Crantz (62). Strensall Common; T. F. Medd.

Lathyrus sylvestris L. (63). Gunthwaite; L. Magee.

Rubus scissus W.C.R. Wats. (64). Meanwood Valley; R. Collins.

R. lindebergii P. J. Muell. and *R. dasyphyllus* (Rogers) Rogers (64). Primley Park View, Leeds; R. Collins.

R. ulmifolius Schott. (64). Hedgerow, Collingham; R. Collins.

R. vestitus Weihe & Nees (64). Meanwood Valley; R. Collins.

Parnassia palustris L. (64). Rombalds Moor, near Bradup, Keighley, not seen here for upwards of 30 years; G. A. Shaw.

Callitriche intermedia Hoffm. (63). Canal at Diggle; C. E. Shaw and M. M. Sayer. Lake at Bretton; M.M.S. conf. W. A. Sledge.

C. obtusangula Le Gall (61). River Derwent, near Malton; W. A. Sledge. (63). Thorne Moore; W.A.S.

Torilis arvensis (Huds.) Link (61). Between Escrick and Crockey Hill; A. Wegener, conf. W.A.S.

Polygonum mite Schrank (64). Bramham Park; M. Norman.

Rumex tenuifolius (Wallr.) Löve (61). Wood at Sutton-on-Derwent; E. Crackles. (65). Colsterdale; Y.N.U. Excurs., Masham.

Vaccinium intermedium Ruthe (*V. Myrtillis* × *Vitis-idaea*) (63). Warley Moor, between Cold Edge Dams and Cat i' the Well Inn; F. Murgatroyd.

Lysimachia thyrsiflora L. (62). Lake at Nunthorpe ? planted; I. Lawrence.

Gentiana pneumonanthe L. (61). Heslington Common, York; E. Thompson.
Scrophularia vernalis L. (65). Roadside between Crakehall and Cocked Hat, a large patch. This station is more than 2 miles from the well-known Burrill locality; C. M. Rob.
Orobanche minor L. (64). Nether Poppleton, in bed of Canterbury bells in nursery garden; C. M. Rob.
Galium erectum Syme (61). Knapton Wold, 1957; E. Crackles, det. Kew.
Hieracium exotericum agg. (61). Willerby Chalk Quarry, 1955; E. Crackles, det. P. D. Sell.
H. lepidulum (Strenstr.) Omang. var. *haematophyllum* Dahlst. (61). With above.
H. strumosum (W. R. Linton) Ley and *H. umbellatum* L. (61). Langwith Common, 1956; E. Crackles, det. P. D. Sell.
Cirsium heterophyllum (L.) Hill (63). Roadside, near Diggle; C. E. Shaw and M. M. Sayer.
Arnoseris minima (L.) Schweigg. and Koerte (61). Between Allerthorpe and Beilby; Seaton Ross; E. Crackles.
Ruscus aculeatus L. (64). Still at Stackhouse where it was recorded in Lees' *Flora*; J. N. Frankland.
Gagea lutea (L.) Ker-Gawl. (64). Still near Boston Spa; P. M. Garnett.
Juncus compressus Jacq. (61). East Cottingwith and Millingtondale; E. Crackles.
J. subnodulosus Schrank (61). Near Wilfholme; Flixton Carr; E. Crackles.
Dactylorchis fuchsii (Druce) Vermeul. × *purpurella* (T. and T. A. Steph.) Vermeul. (65). With *D. fuchsii* at Dishforth; C. M. Rob. No sign of *purpurella* was seen.
Carex laevigata Sm. (63). Gunthwaite; E. Thompson.
C. hostiana DC. × *C. demissa* Hornem. (61). Heslington Fields, near York, 1957; E. Crackles, conf. Nelmes.
C. extensa Gooden. (61). Easington Salt Marsh, 1957; E. Crackles.
C. lasiocarpa Ehrh. (62). Fen Bog; F. Rose and C. M. Rob.
C. ericetorum Poll. (64). Etchell, near Scarcroft; D. J. Tennant.
C. pseudoaxillaris K. Richt. (*C. otrubae* × *remota*) (61). Howsham Woods; Y.N.U. Malton Excursion.
Festuca altissima All. (62). Beckhole, woods on both sides of River Esk; F. Rose and C. M. Rob.
Poa compressa L. (61). Wall at Setterington; E. Crackles and C. M. Rob.
Catabrosa aquatica (L.) Beauv. (61). Millington pastures; E. Crackles.
Calamagrostis canescens (Weber) Roth (62). Topcliffe Mill; C. M. Rob and M. McCallum Webster.

ALIENS

Ranunculus aconitifolius L. (62). Nunthorpe; I. Lawrence.
Fumaria parviflora Lam. and *F. micrantha* Lag. (64). R.D.C. Tip, Otley; F. Houseman.
Diplotaxis tenuifolia (L.) DC. (61). Spurn; M. M. Norman. (62). Disused airfield, Skipton-on-Swale; C. M. Rob.
Rapistrum hispanicum (L.) Crantz (62). Potato field, Carlton Miniott, 1957; C. M. Rob and M. McCallum Webster.
Silene dichotoma Ehrh. (61). Kirkham Abbey, seed field; Y.N.U., Malton Excursion.
S. maritima With. (63). Thorne Colliery; L. Smith, per W. Bunting.
Dianthus barbatus L. (61). Sandpit, Staxton; M. M. Norman.
Arenaria balearica L. (62). Old wall, Great Ayton; I. Lawrence.
Chenopodium carinatum R. Brown (62). Potato field, Carlton Miniott, 1957; C. M. Rob and M. McCallum Webster.
Geranium endressi Gay (62). Nunthorpe; Leven Banks; I. Lawrence.
Impatiens parviflora DC. (64). York, West Park; T. F. Medd.
Medicago falcata L. × *M. sativa* L. (61). Hillside Woodale, 1957; E. Crackles, conf. Kew.
Rubus laciniatus Willd. (61). Low Wood, Tibthorpe; E. Crackles. (62). Shrubbery, Catton Hall; C. G. Rob.
Potentilla recta L. (61). Grass field, Beilby; E. Crackles.
Saxifraga umbrosa L. (64). Gorge of River Greta below Burton-in-Lonsdale; J. N. Frankland.
Epilobium nerteroides Cunn. (64). Cowside Beck, Arncliffe; J. E. Duncan. Wormald Green; M. M. Normen. (65). Colsterdale, very abundant upstream from Marks Bridge; Y.N.U., Masham Excursion.

Smyrnium olusatrum L. (64). Still at Pontefract Castle; P. M. Garnett.
Coriandrum sativum L. (61). Spurn; M. M. Norman, conf. W.A.S.
Bupleurum rotundifolium L. (62). Middlesbrough; I. Lawrence.
Rumex patientia L. (64). Waste ground off Westgate, Leeds; R. Collins.
R. alpinus L. (63). Diggle; C. E. Shaw, per M. M. Sayer. (64). Cookridge; G. A. Shaw.
Helxine soleirolii Req. (65). Plentiful in shaded parts of the ruined Castle, Middleham; C. M. Rob.
Trachystemon orientale (L.) G. Don (62). Saltburn; I. Lawrence.
Nicandra physalodes (L.) Gaertn. (62). Potato field, Carlton Miniott, 1957; C. M. Rob and M. McCallum Webster. (65). Potato field, Buryhills, Kirklington; C. M. Rob.
Veronica filiformis Sm. (62). Hutton-le-Hole; J. E. Duncan.
Galinsoga ciliata (Raf.) Blake (62). Middlesbrough; I. Lawrence. (63). Garden weed, Holmfield; F. Murgatroyd. (64). Harrogate; M. M. Norman.
Xanthium spinosum L. (65). Potato field, Buryhills, Kirklington; C. M. Rob.
Senecio squalidus L. (62). Stokesley Station; C. M. Rob. (63). Gunthwaite; G. B. Wakefield. Bretton; F. Murgatroyd. (64). York, near Railway Station; T. F. Medd.
Gnaphalium luteo-album L. (65). Potato field, Buryhills, Kirklington; C. M. Rob.
Erigeron bonariensis L. (65). Potato field, Buryhills, Kirklington; C. M. Rob.
Conyza canadensis (L.) Cronq. (62). York; A. Wegener.
Chrysanthemum maximum Ramond. (62). Old quarry, Castleton; J. E. Lousley and C. M. Rob.
Centaurea calcitrapa L. (64). Shipley Sewage Works; F. Houseman, det. C. E. Shaw.
Cicerbita bourgaei (Boiss.) Beauv. (64). Pool, near Otey; F. Houseman, det. Kew.
C. macrophylla (Willd.) Wallr. (63). Crossflatts; M. Copley. Ogden lane, Causeway Foot; H. Foster, per F. Murgatroyd.
Crocus purpureus Weston (64). Collingham; M. M. Norman.
Crocosmia × *crocosmiflora* (Lemoine) N.E. Br. (61). Staxton; M. M. Norman.
Hyacinthoides hispanica (Miller) Rothmaler (64). Paper Mills tip, Otley; F. Houseman.
Bromus unioloides Kunth (65). Buryhills, potato field; C. M. Rob.
Hordeum jubatum L. (63). Kirkheaton· F. Draper and M. McCallum Webster.
H. glaucum Steudel (65). Buryhills, Kirklington; C. M. Rob.
H. hystrix Roth. (65). Buryhills, Kirklington; C. M. Rob.
H. leporinum (62). Potato field, Carlton Miniott, 1957; C. M. Rob and M. McCallum Webster. (65). Buryhills, Kirklington; C. M. Rob.
Agrostis avenacea J. F. Gmel. (65). Potato field, Buryhills; C. M. Rob.
Polypogon monspeliensis (L.) Desf. (65). Potato field, Buryhills; C. M. Rob.
Setaria verticillata (L.) Beauv. (63). Idle, Bradford, 1957; F. Draper and M. McCallum Webster.

Bryology (G. A. Shaw): The Bryological Section has held two field meetings during the year, one at Bolton Abbey and the other at Pateley Bridge for Guisecliffe. Mr. F. E. Branson has again done much good work in his own district, while a useful list for Upper Wensleydale has been furnished by Mr. Geoffrey Halliday and Miss K. E. Luck, made during a visit to Bainbridge by a party from Cambridge University. The most important records are Mr. Branson's discovery of *Dicranum strictum* Schleich. in Gormires Wood, Hampsthwaite, and his *Grimmia stirtoni* Schp. from a wall between Hampsthwaite and Gormires Wood (the sole Yorkshire record previous to this was a gathering made by W. Ingham in 1902 by Fell Beck, Brimham Rocks).

A selection of the more interesting records is given below:

Key to Initials.— F. E. Branson; G. Halliday; Miss K. E. Luck.

MOSSES

Fissidens crassipes Wils. (65). Rocks by the Ure, Bainbridge; G.H.
F. exilis Hedw. (64). Birkham Wood, Knaresborough; the brickworks, Roecliffe, near Boroughbridge; F.E.B.
Ditrichum heteromallum (Hedw.) E. G. Britton (61). Spurn; G.A.S. This is given in *Census Cat.* for V.C. 61, but there are no entries in our register.
Dicranella schreberiana (Hedw.) Dix. (61). Sandstone quarry, near Malton; F.E.B.

Dicranum strictum Schleich. (64). On prostrate trunk, near the stream, Gormires Wood, Hampsthwaite; F.E.B.
Tortula ruraliformis (Besch.) Dix. (61). Spurn; G.A.S.
Barbula hornschuchiana Schultz (64). At base of Army bridge over Ure between Ripon Station and Queen Mary's Dub; F.E.B.
B. tophacea (Brid.) Mitt. (64). Bolton Abbey Woods; F.E.B.
Anoectangium compactum Schwaegr., *c. fr.* (65). Whitfield Gill, Askrigg; G.H.
Weissia crispa (Hedw.) Mitt. (61). Near Malton; F.E.B.
Grimmia trichophylla Grev. (64). Wall at Hebden Wood, near Sawley; wall near Lofthouse; wall near Pateley Bridge; F.E.B.
G. stirtoni Schp. (64). Wall between Hampsthwaite and Gormires Wood, and on a wall near Burnt Yates; F.E.B.
Funaria muehlenbergii Turn. (65). Limestone wall, near Bainbridge; G.H. and K.E.L.
Splachnum ovatum Hedw. (64/65). Fleet Moss; G.H. and K.E.L.
Schistostega pennata (Hedw.) Hook. & Tayl. (65). Cave, Druid's Circle, near Masham; F.E.B.
Bryum pallescens Schleich. (64). Quarry near White Quarry Farm, Tadcaster; F.E.B.
B. bicolor Dicks. (64). Quarry near White Quarry Farm, Tadcaster; gravel works, near Knaresborough; brickworks, Roecliffe, near Boroughbridge; F.E.B.
Hedwigia ciliata (Hedw.) P. Beauv. (64). Wall near Lofthouse; F.E.B.
Leskea polycarpa Hedw. (65). Tree trunk, bank of Semer Water; K.E.L.
Campylium protensum (Brid.) Kindb. (65). Fen at south end of Semer Water; G.H.
Hygroamblystegium tenax (Hedw.) Jennings (64). Side of well, near Burnt Yates; F.E.B.
Scorpidium scorpioides (Hedw.) Limp. (65). Confluence of Maize Beck and Tees; G.H.
Acrocladium sarmentosum (Wahl.) Richards & Wallace (65). South of Falcon Clints; G.H.

LIVERWORTS

Reboulia hemisphaerica (L.) Raddi (65). Addleborough; G.H.
Riccardia sinuata (Dicks.) Trev. (64). Earthy bank, Pateley Bridge road, Birstwith; F.E.B.
Trichocolea tomentella (Erhr.) Dum. (64). Streamside, Hebden Wood, Sawley; F.E.B.
Plectocolea obovata (Nees) Mitt. (65). Birk Gill, near Masham; F.E.B.
P. hyalina (Lyell ex Nook.) Mitt. (64). Boulder in Sand Gill, in Pateley district; F.E.B.
Chiloscyphus pallescens (Ehrh.) Dum. (65). *Carex rostrata* zone, Semer Water; G.H.
Scapania umbrosa (Schrad.) Dum. (64). Guisecliffe; F.E.B.
Porella cordaeana (Hub.) Evans (64). Side of waterfall and cliff, near Lofthouse; F.E.B.

Mycology (Miss J. Grainger): The salient feature of the year has been the publication of the second part of Mr. Orton's Cortinarius monograph. The numerous mycological papers published by the Committee are still selling well.

The Spring Foray was held at Wetherby in April. The district proved interesting and though the attendance was never more than a dozen, good work was done under the leadership of our Chairman, Mr. W. D. Graddon.

The Autumn Foray at Malham Tarn Field Centre, attended by nineteen members, again proved a most enjoyable meeting. The records of noteworthy species will be published in *The Naturalist* in due course. We were fortunate in having amongst our number Mr. Orton, and Dr. Henderson from Edinburgh Botanical Gardens. Our Chairman, Mr. Graddon, in his address, gave us an account of ascus structure and its relation to the classification of Discomycetes.

A day Foray was held at Meltham on Saturday October 18th, when the Reservoir Wood, Meltham, yielded *Strobilomyces stobilaceus* (Scop.) Berk., *Craterellus cornucopioides* (Linn.) Fr., and *Lactarius chrysorrheus* Fr. Harden Clough was not so good but pastures around yielded quite a number of species of *Hygrophorus*.

Mr. R. Watling reports that the mycological herbarium of James Needham has now been deposited in the National Herbarium at Kew.

YORKSHIRE NATU

INCOME AN

Year endin

1957 £	s.	d.	INCOME	£	s.	d.
420	7	8	Subscriptions Received and due	445	18	6
9	12	3	Sale of Mycological Papers—Russula, etc.	19	13	5
5	0	9	Sale of other publications	16	6	3
30	7	3	Interest—General Fund	33	3	6
2	0	0	Donations—General Fund	30	10	2
—			Excess of Expenditure over Income	1	19	5
£467	7	11		£547	11	3

BALANCE SHEET

1957 £	s.	d.	£	s.	d.		£	s.	d.	£	s.	d.
						ACCUMULATED FUNDS—GENERAL PURPOSES:						
			100	0	0	Booth Fund	100	0	0			
			100	0	0	Cheeseman Fund	100	0	0			
			250	0	0	R. C. Fowler-Jones Legacy	250	0	0			
			477	0	0	Life Members' Account	477	0	0			
			927	0	0		927	0	0			
			186	2	2	*Less* Deficiency Income and Expenditure Account per contra	188	1	7			
740	17	10								738	18	5
						MYCOLOGICAL FUND—R. C. Fowler-Jones Legacy:						
			30	2	10	Balance brought forward	49	19	9			
			16	5	9	Sales of Papers—Cortinarius, etc.	53	18	0			
			—			Donations—Cortinarius II	87	11	0			
			6	7	0	Sundry Donations		—				
			52	15	7		191	8	9			
			2	15	10	*Less* Cost of Panaeolus Report		—				
49	19	9								191	8	9
						ORNITHOLOGICAL FUND—W. W. Nicholas:						
						Balance brought forward	100	0	0			
						Donation	25	0	0			
						Interest on Investment	3	0	0			
							128	0	0			
						Less Expenditure	28	0	0			
100	0	0								100	0	0
175	0	0				Reserve for Depreciation of Investments				175	0	0
9	0	0				Subscriptions paid in advance				12	9	6
£1074	17	7								£1217	16	8

Examined and found correct,

A. C. COLLINGE
W. BENNETT } *Hon. Auditors.*

ALISTS' UNION

EXPENDITURE ACCOUNT

October 31, 1958

1957 £ s. d.	£ s. d.	EXPENDITURE	£ s. d.	£ s. d.
		GENERAL PRINTING:		
	27 8 7	Members' Cards	28 18 2	
	83 15 7	Circulars	72 10 8	
	—	List of Members	34 4 11	
	—	President's Circular Letter	6 8 8	
	—	Special Appeal and Covenant Forms	9 0 8	
	111 4 2		151 3 1	
	—	*Less* Contribution	6 8 8	
111 4 2				144 14 5
		The Naturalist:		
	315 2 7	Members' and Exchange Copies	357 8 5	
	10 14 6	Extra Pages and Illustrations	31 17 7	
	5 0 0	Editor's Expenses	7 6 3	
	330 17 1		396 12 3	
	11 15 6	*Less* Contributions	17 16 3	
	—	*Less* Received for old copies	0 9 0	
319 1 7				378 7 0
17 1 9		Officers' Expenses		14 4 6
4 9 6		Sundry Expenses		10 5 4
15 10 11		Excess of Income over Expenditure		—
£467 7 11				£547 11 3

October 31, 1958

1957 £ s. d.	£ s. d.	INVESTMENTS (Nominal Value):	£ s. d.	£ s. d.
	100 0 0	Booth Fund—3½% Conversion Stock	100 0 0	
	100 0 0	Cheeseman Fund—3½% War Stock	100 0 0	
	100 0 0	Nicholas Fund—3% British Transport	100 0 0	
	200 0 0	General Fund—4% Consols (Bank of England)...	200 0 0	
	159 10 11	,, ,, 4% Consols (P.O.)	159 10 11	
659 10 11				659 10 11
278 5 1		Deposit Account—Westminster Bank		290 1 1
106 10 1		Current Account—Westminster Bank		267 6 8
	36 11 6	SUBSCRIPTIONS due	7 18 0	
	6 0 0	*Less* Reserve Bad Debts	7 0 0	
30 11 6				0 18 0
		INCOME AND EXPENDITURE ACCOUNT:		
	201 13 1	Balance brought forward	186 2 2	
	—	*Add* Deficit year to 31/10/58	1 19 5	
	15 10 11	*Less* Surplus year to 31/10/57	—	
	186 2 2	Balance deducted contra	188 1 7	
£1074 17 7				£1217 16 8

YORKSHIRE NATURALISTS' UNION

INCOME AND EXPENDITURE ACCOUNT

Year ended October 31, 1958

1957	INCOME			
£ s. d.		£ s. d.		
420 7 8	Subscriptions Received and due		445 18 6	
9 12 3	Sale of Mycological Papers—Russula, etc.		19 13 5	
5 0 9	Sale of other publications		16 6 3	
30 7 3	Interest—General Fund		33 3 6	
2 0 0	Donations—General Fund		30 10 2	
—	Excess of Expenditure over Income		1 19 5	
£467 7 11			£547 11 3	

1957	EXPENDITURE				
£ s. d.		£ s. d.	£ s. d.		
	General Printing:				
	Members' Cards		28 18 2		
	Circulars		72 10 8		
	List of Members		34 4 11		
	President's Circular Letter		6 8 8		
	Special Appeal and Covenant Forms		9 0 8		
			151 3 1		
	Less Contribution		6 8 8		
111 4 2				144 14 5	
	The Naturalist:				
	Members' and Exchange Copies		357 8 5		
	Extra Pages and Illustrations		31 17 7		
	Editor's Expenses		7 6 3		
			396 12 3		
	Less Contributions		17 16 3		
	Less Received for old copies		0 9 0		
319 1 7				378 7 0	
17 1 9	Officers' Expenses			14 4 6	
4 9 6	Sundry Expenses			10 5 4	
15 10 11	Excess of Income over Expenditure			—	
£467 7 11				£547 11 3	

BALANCE SHEET

October 31, 1958

1957	ACCUMULATED FUNDS—GENERAL PURPOSES:				
£ s. d.		£ s. d.	£ s. d.		
100 0 0	Booth Fund	100 0 0			
100 0 0	Cheeseman Fund	100 0 0			
250 0 0	R. C. Fowler-Jones Legacy	250 0 0			
477 0 0	Life Members' Account	477 0 0			
927 0 0		927 0 0			
186 2 2	*Less* Deficiency Income and Expenditure Account per contra	188 1 7			
740 17 10			738 18 5		
	MYCOLOGICAL FUND—R. C. Fowler-Jones Legacy:				
30 2 10	Balance brought forward	49 19 9			
16 5 9	Sales of Papers—Cortinarius, etc.	53 18 0			
—	Donations—Cortinarius 11	87 11 0			
6 7 0	Sundry Donations	—			
52 15 7		191 8 9			
2 15 10	*Less* Cost of Panaeolus Report	—			
49 19 9			191 8 9		
	ORNITHOLOGICAL FUND—W. W. Nicholas:				
	Balance brought forward	100 0 0			
	Donation	25 0 0			
	Interest on Investment	3 0 0			
		128 0 0			
	Less Expenditure	28 0 0			
100 0 0			100 0 0		
175 0 0	Reserve for Depreciation of Investments		175 0 0		
9 0 0	Subscriptions paid in advance		12 9 6		
£1074 17 7			£1217 16 8		

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£ s. d.		£ s. d.	£ s. d.		
100 0 0	Booth Fund—3½% Conversion Stock	100 0 0			
100 0 0	Cheeseman Fund—3½% War Stock	100 0 0			
100 0 0	Nicholas Fund—3% British Transport	100 0 0			
200 0 0	General Fund—4% Consols (Bank of England)	200 0 0			
159 10 11	" " 4% Consols (P.O.)	159 10 11			
659 10 11			659 10 11		
278 5 1	Deposit Account—Westminster Bank		290 1 1		
105 10 1	Current Account—Westminster Bank		267 6 8		
36 11 6	SUBSCRIPTIONS due	7 18 0			
6 0 0	*Less* Reserve Bad Debts	7 0 0			
30 11 6			0 18 0		
	INCOME AND EXPENDITURE ACCOUNT:				
201 13 1	Balance brought forward	186 2 2			
—	*Add* Deficit year to 31/10/58	1 19 5			
15 10 11	*Less* Surplus year to 31/10/57	—			
186 2 2	Balance deducted contra	188 1 7			
£1074 17 7			£1217 16 8		

Examined and found correct,

A. C. COLLINGE
W. BENNETT } *Hon. Auditors.*

BOOK REVIEWS

A Flora of the Marshes of California, by **Herbert L. Mason.** Pp. viii + 878 with 362 line drawings. University of California Press; agents, Cambridge University Press. 75/-.

Over 900 species representing approximately one quarter of the total vascular flora of California, are described in this book. The term ' marshes ' as used in the title, is employed in the widest possible sense to cover all types of humid plant communities from those of open water to seasonally wet floodlands or moist grasslands in both salt-water and fresh-water habitats. A number of other species common to such habitats but with a wide ecological range are included, together with many introduced plants which either through rice cultivation or other human activities have gained a more or less permanent footing.

The author's views in matters of taxonomic judgement do not always coincide with those of other systematists or monographers, but they gain in weight through being the outcome of several years' intensive work in the field as well as the herbarium. Special praise is due to Mary B. Pomeroy, who is responsible for most of the drawings with which the book is so generously illustrated. Numerous dissections accompany each species depicted and the fine detail which these display together with the realistic habit drawings are as artistically pleasing as they are botanically accurate. One cannot help comparing these elegant drawings with the graceless figures which formed the first instalment of a recent illustrated work on British plants. These, together with the descriptions and keys which are based throughout on direct observations of the living plants, and the incorporation of much information not embodied in existing floras of the region, will make this book of value to systematic botanists of western America in general as well as of California in particular.

W.A.S.

List of British Vascular Plants, by **J. E. Dandy.** Pp. xvi + 176. Obtainable from British Museum (Natural History), Cromwell Road, London, S.W.7. 10/-.

The need for a new check-list of British plants incorporating recent additions to the flora and modern views on taxonomy and nomenclature has been felt for some years and this new list, sponsored jointly by the Botanical Society of the British Isles and the Natural History Museum replaces the obsolete *London Catalogue of British Plants* (1925) and Druce's *British Plant List* (1928). No botanist was better qualified to undertake the preparation of such a work than Mr. Dandy, for a solution of the many difficult problems affecting the correct application of names requires a high degree of taxonomic judgement combined with specialised knowledge of the code of botanical nomenclature.

The sequence of families follows that of Clapham, Tutin and Warburg's *Flora of the British Isles* (1952) with only minor modifications, but at generic and specific levels there are, inevitably, many changes. A large number of the genera recognised in the *Flora* are discarded. *Dentaria* returns to *Cardamine*, *Melandrium* to *Silene*, *Viscaria* to *Lychnis*, *Naumbergia* to *Lysimachia*, *Oxycoccus* to *Vaccinium*, and *Bromus* and *Scirpus* reassume their former boundaries. There is sure to be general agreement with the author's view on genera that ' pending monographic treatment on a world basis, it is better to retain the wide concept '. The pity is that the wisdom of this course was not appreciated by the authors of the *Flora*. Some of the discarded genera such as *Trigonella*, *Centunculus* and *Tanacetum*, which are merged in *Trifolium*, *Anagallis* and *Chrysanthemum* respectively, will occasion more surprise because of their greater familiarity and traditional acceptance in all British floras. A fair number of genera newly introduced in the *Flora* are retained and yet others such as *Pulsatilla*, *Tuberaria* and *Dactylorchis* which are separated from *Anemone*, *Helianthemum* and *Orchis*, appear for the first time in a British list. The Crosswort is removed from *Galium* and becomes *Cruciata chersonensis* but its place is filled by Woodruff which is transferred from *Asperula* to become *Galium odoratum*. The alien *Erigeron canadensis* becomes *Conyza canadensis* but the citation of a *Conyza* × *Erigeron* hybrid would seem to throw doubt on the validity of such a generic separation.

At specific level name changes are too numerous for comment here but a point of some significance is that in several instances discarded names are reinstated. Thus *Dryopteris dilatata* reappears for *D. austriaca*, *Polystichum aculeatum* for *P. lobatum*, *Galium saxatile* for *G. hercynicum* and the specific epithet for the Marsh

Orchid again becomes *incarnata*. The moral here is surely all too plain. Synonyms are cited where necessary but despite the warning in the introduction that citations ' are not necessarily regarded as taxonomically identical ' the inclusion of variants of uncertain status along with synonyms is hardly satisfactory.

The least satisfactory feature of the list is the way in which aliens and introduced species have been selected. It is always a difficult problem to decide where to draw the line and probably no satisfactory compromise is possible between the stringent policy which the *London Catalogue* adopted and Druce's aim at including every waif and stray ever recorded in the country. But it is difficult to discover any policy at all in this list for the statement in the introduction that ' Casuals (non-permanent adventive aliens and escapes from cultivation) are not included ' is totally incompatible with the list itself. If Grape Vine, Fig and Walnut are included why not the Lombardy Poplar ? Cultivated plants do in fact figure very largely amongst the non-indigenous species admitted yet many aliens which are repeatedly encountered on mill wastes, sewage farms and fields dressed with shoddy find no mention.

The list, however, is primarily concerned with native species and its merit must be gauged in that context. British botany has suffered from an inordinate number of name changes in recent years. To the extent that this is a reflection of a renewed interest and activity in taxonomic research this is a healthy sign. But stability in nomenclature has become an urgent need and if this list succeeds in stabilising names it will serve a valuable service.

W.A.S.

British Wild Flowers, by **Patricia Lewis.** Pp. 376 with 15 colour plates and 163 line drawings. *Kew Series,* Vol. 1. Eyre & Spottiswood. 25/-.

British Trees and Shrubs, by **R. D. Meikle.** Pp. 244 with 15 colour plates and 82 line drawings. *Kew Series,* Vol. 2. Eyre & Spottiswood. 25/-.

The first two volumes of this new series will be welcomed by all who have an interest in the British flora and more particularly by those with limited field experience. They are clearly and simply written, accurate and each has a comprehensive glossary.

The first volume dealing with the flowers most commonly found in Britain will give any novice a start on the right lines. The second volume is, if anything, still more helpful, with better line drawings. Those of Volume 1 are rather too heraldic and give little help as to the habit of the plant figured. The colour plates of both volumes are uniformly good. In both books the generic keys appear to work well and the descriptions are clear. Those in the first volume are less detailed but this is understandable as there are fewer species to describe in Volume 2. In the latter the descriptions of Willows, Poplars and Elms will be helpful to many who have progressed beyond the novice stage.

Three more volumes are to be published under the editorship of R. D. Meikle and while we await these with keen expectation there must be a general feeling of regret to find grasses and sedges left out of the series. Elementary books on these orders would be most useful.

C.M.R.

Great Migrations, by **Georges Blond.** Pp. 224 with 27 photographic illustrations. Hutchinson, 1958. 18/-.

This is a careful, journalistic account of the movements of some of those animal species which make either prolonged or irruptive movements, seasonally or as part of their life cycles. Eel and salmon, bison and lemming, locust and grey-lag are the species selected for a fairly comprehensive and always accurate account of their movements, extended in some cases by a fictional version from one of the animals involved. Although strictly popular in approach, it makes no concessions to sensationalism and the author's reading, which derives mainly from the French literature, is thorough and up to date. The fascination and mystery which, despite our endeavours, still surround some of these spectacular movements is well conveyed and the author has admirably succeeded in his avowed intention ' to write not an exhaustive monograph but a readable book '. The translation from the French is commendable except in the captions to some of the illustrations wherein a flock of starlings become swallows, ducks are offered as geese and ' Several sorts of woodcock fly by stages from Kamchatka to western France and the Canary Islands. '

A.H.

Anatomie de Latimeria chalumnae, Tome **I,** by **J. Millot** and **J. Anthony.** Pp. 122 with 80 plates. Published by Êditions du Centre National de la Recherche Scientifique, 13 Quai Anatole France, Paris, 1958. 9,800 fr.

This impressive work is the first of several volumes dealing with the structure of the famous Coelacanth. Previously two specimens had been described by Professor J. B. L. Smith, but these were inevitably imperfect. Professor Millot and his colleagues now have a further ten specimens at their disposal, preserved soon after their capture off the Comore Islands. This volume describes the skeleton and musculature, and a very handsome work it is, illustrated not only by beautifully drawn text-figures but also by lavish collotype plates, some of X-ray photographs.

The authors have chosen the skeleton as their first subject in order that particular comparison may be made with fossil Coelacanths, which range in age from the Devonian to the Cretaceous. Indeed this is in some way a unique study of fish-morphology, in that almost all the comparative work is palaeontological. It is fascinating to discover how accurately, for the most part, the palaeontologist has interpreted his material; and the differences between the living and fossil genera are equally enlightening. The pedunculate fins of *Latimeria* have a longer fleshy lobe, and consequently a more ' leg-like ' appearance, than those of the fossil genera. Then the brain is minute compared with the cranial cavity that houses it; this is of more than immediate anatomical interest because palaeontologists have, with some reservations, tried to deduce brain structures from the shape of the cranial cavity, and clearly among Coelacanths this would now be very hazardous. The notochord is very large, and the bony elements of the vertebrae on it almost rudimentary—yet another case of bone regression among fishes. Above all the work confirms our ideas of the archaic nature of the living Coelacanths, not only in its scarcity and obscure habitat, but in its anatomy. As the authors say, after the Triassic period the Coelacanth structure was stabilised.

This book sets an enviably high standard in clarity of text and illustrations, but one feels that the authors and publishes have been misguided in their choice of format and binding. In order that the text and plates may be looked at together they are mounted on either side of a large folder and open upwards, like a calendar. But the binding is not sufficiently massive, and the combination is much more awkward to handle than the conventional one or two volumes. This is the only flaw, however, in a most valuable work, certainly destined to become a classic. D.H.R.

The Folklore of Birds, by **Edward A. Armstrong.** Pp. 272 with 55 photographs and 85 line drawings. Collins, *New Naturalist* Series, 1958. 30/-.

The sub-title of this book is 'An Enquiry into the Origin and Distribution of some Magico-Religious Traditions ' and the author has not only cast his net wide but given references wherever this is possible. The book concludes with 30 pages of bibliographical notes and indices.

The evidence on which the book is based is derived from rock paintings and scratchings, engraved bones, pottery, coins, ornaments, from the great accumulation of written records and from still surviving folklore. The author is able in some cases to trace beliefs that have persisted into the eighteenth century or later, back to the stone age, and in fourteen chapters he deals with such subjects as the Michaelmas Goose, the Rain-Goose, the Thunderbird, Fire-Birds, etc.

It is not without interest to learn that because the Barnacle Goose was believed to hatch from a shell-fish, it could for this reason be eaten on Friday or throughout Lent, without offence to the rules of the Church. Sometimes the historical method of approach, which proved most successful in the case of the Goose and Woodpecker, is unrewarding and resource must be made to the geographical distribution of a ritual and this applies to the very interesting chapter entitled ' Wren hunt and Procession ' which deals with one of the most elaborate bird rituals surviving in Europe and particularly in Ireland. After reviewing all the evidence, Mr. Armstrong writes: ' We may conclude that the Wren Cult reached the British Isles during the Bronze Age and was carried by megalith builders whose cultural inspiration came from the Mediterranean region. The Wren hunt represents New Year ceremonial having as its purpose the defeat of the dark earth-powers and identification with the hoped-for triumph of light and life.'

This scholarly book should appeal to a wide public, including many who are not ornithologists, as its themes are folklore and tradition. E.W.T.

A Study of Blackbirds, by **D. W. Snow.** Pp. 192 with 23 textual illustrations. George Allen & Unwin, 1958. 21/-.

The information conveyed in this study of the Blackbird population in the Oxford Botanic Gardens is so recondite and so economically presented that it is impossible to do it justice in summary. It should be read by all ornithologists, to whom it will serve as an example of how much can be discovered by a careful study of the commonplace.

We have seen, during the past three or four decades, how the Blackbird has increased while the Song Thrush has become scarcer, at least around the towns. It would appear, from Dr. Snow's account of the breeding success of his garden Blackbirds, that suburban conditions are actually advantageous to the species and its readiness to adopt them probably largely responsible for its noteworthy increase, despite the activities of such predators as the Carrion Crow and Magpie which are themselves becoming increasingly urbanised.

Much of what the author has to say has been published in the ornithological journals but this account, although eminently readable, makes no concessions to popular appeal. It is a sign of the times that this first-rate contribution to ornithology in its widest aspects, although its principal reference is to a single species, can appear through the channels of general publication. A.H.

The World of Spiders, by **W. S. Bristowe.** Pp. xiii + 304 with 14 photographic plates, 4 in colour, 22 half-tone plates, and 116 text figures. Collins, *New Naturalist* Series, 1958. 30/-.

The author is well known to the small group of spider enthusiasts for his past publications, and all would agree that there can be no one better qualified than he to write the sort of book that the title implies. His seemingly life-long dedication to the study of spiders has provided him with a wealth of first-hand knowledge of their habits. This wealth, together with an obvious flair for good descriptive writing, has satisfied an urgent need for a general yet interesting account of British spiders. As the author says, though in a context indicative of his modesty, ' bees and ants have had the advantage of skilful chroniclers ' although ' spiders are even more worthy of admiration '. With this last I would certainly agree.

The writer begins by examining the position of the spider in fact and fallacy which have been responsible for giving it odd, and sometimes unfortunate qualities. This is followed by an account of the structure and classification of spiders. Although the diagrams used here are clearly drawn, those relating to the sex and sense organs should have been labelled. By no means everyone is familiar, for example, with the microscopical section of a typical sense organ of an Arthropod. There are then chapters on a variety of topics which include a stimulating discussion on the possible origin of spiders in evolution. Although the theory he advances is not an entirely new one, the writer contributes much to it.

Except for the last chapter on collecting spiders, the rest of the book is devoted to the description by families of spiders. Lucid accounts, interlaced with delightful humour, reveal some of the fascinating habits and behaviour of our spiders, which must have been noticed by many naturalists though without having been fully understood. Besides the large number of spiders which ensnare creatures by means of webs, there are those which hunt their prey on foot. Under this latter category go the ' wolf ' spiders, the ' crab ' spiders which lie in wait in the heads of flowers for unsuspecting insects which include butterflies, and the so-called ' lynx ' spider (Oxyopidae) which leaps amongst foliage. Perhaps one of the most fascinating accounts is that of *Scytodes thoracica* which stalks her victim across the ceiling and immobilises it with threads of gum squirted from her jaws. The courting behaviour of these spiders, especially of the jumping spiders (Salticidae) and ' wolf ' spiders, is striking. Contrary to general belief, male spiders are certainly not always eaten by the females. However, mistaken identity with certain species appears to be a real problem. So prior to mating, the female, if not completely mesmerised by the odd antics of the male, may be presented with a fly (as in the Pisauridae) or even ' roped ' by webs to the ground ! These are but a few of the truly amazing facets of spider life. As the author shows, spiders exert a big influence on insects in many ways, and at the same time may regularly fall victim to some of them.

Whether one fancies spiders or not (and even the author admits to a horror of the long-legged house forms), I recommend this excellently illustrated book which certainly fulfils the aim of the *New Naturalist* series. T.A.G.

Bibliography of Rural Land Economy and Landownership 1900-1957, by **D. R. Denman, J. F. Q. Switzer and O. H. M. Sawyer.** Pp. 412. Department of Estate Management, Fitzwilliam Street, Cambridge. 35/- net.

Old-world cottages and inadequate buildings at times look extremely picturesque; so often they indicate an unfortunate maladjustment within the rural economy. Despite the recent agricultural prosperity many farmers are still handicapped by unsatisfactory buildings, or scattered fields or by a multiplicity of small landlords. Landlords in their turn are beset by difficulties in providing new capital and frustrated in reorganising their estates. Here are important problems of investment and land management which have not received the attention they deserve.

This new bibliography is therefore most timely and welcome. It is carefully devised to provide clear and comprehensive references to works on rural land economy and land ownership. The authors intended that their work should both stimulate further research and at the same time appeal to other professional and interested parties. The choice of subjects and the wide range of the references suggest that they have succeeded admirably in this dual aim. The book is a delight to use and the authors are to be congratulated on a task well done. C.J.B.

Wanderers in the New Forest, by **Juliette de Bairacli Levy.** Pp. 208, with 24 photographic illustrations. Faber & Faber, 1958. 25/-.

The author settled with her two young children in a cottage in the New Forest and her book is an account of the simple life she led there, especially of her associations with the gypsy folk with whom she endeavoured to be on friendly, not patronising, terms. A protagonist of herbal remedies, her knowledge of plant and animal life appears to be deep and well-founded. Her sensitivity brought her into conflict with authority on several occasions in such circumstances as one cannot fail to applaud, and the naturalist who is compelled to play his part in an organised society cannot but appreciate her efforts to raise her children in more natural and less inhibited surroundings. There is a combination of erudition and simplicity here which engenders a book of considerable charm and interest. E.H.

Tales from the Vienna Woods, by **Lilli Koenig,** with a Foreword by Konrad Lorenz. Pp. 159 with 24 half-tone plates and line illustrations by the author. Methuen. 18/-.

Lilli Koenig and her husband have set up a biological research station in some disused army huts in the heart of the Vienna woods. This book describes Mrs. Koenig's experiments in hand-rearing a varied collection of animals from Bee-eaters to bantams, dormice, hares, deer and a badger. There are some interesting observations about animal behaviour and language, but rather too much space is devoted to Mrs. Koenig s tribulations as a foster-mother and at times she is guilty of writing down to her readers. This may be due to the translator, who rarely escapes from the German idiom and who is, one suspects, responsible for some lapses into sentimentality. The author's line drawings are charming and clearly based on close personal observation. Many nature-lovers will enjoy this book, although its association with the name of Konrad Lorenz raises hopes which are not fulfilled. C.S.

The Observer's Book of Sea Fishes, by **A. Laurence Wells.** Pp. 160 with 32 plates and 32 colour plates. Warne. 5/-.

This further addition to the *Observer* series is intended as a guide to the identification of 164 species of marine fishes which may to a greater or lesser extent be found in the waters around the British Isles. An introduction of 16 pages ranges —rather too widely—over the characteristics of the principal orders, some anatomical features, the senses of fishes, and some personal observations on behaviour. There is a classified index giving the scientific and popular names, and then each family and its representatives are considered separately with notes on diagnostic features and comments covering a variety of topics including distribution, habitats, life histories and behaviour.

A book of this size can do little else but act as an introduction to the subject and a guide to the fishes. In the latter capacity it could have been made easier to use if features such as the type, number and position of the fins had been used to compile a simple key to the families. J.R.L.

The Story of Evolution, by **Sir Julian Huxley.** Pp. 69. Rathbone Books, London. 17/6.

This attractive book sets out to describe the story of evolution by means of both words and pictures, depicting in turn the fact of evolution, how it occurs, and its course through geological time. Sir Julian Huxley's text is admirable, as one would expect of so distinguished an authority. The very varied illustrations, which consist of photographs, diagrams and pictures produced by a panel of artists, do not all attain the high standard set by the text. Many are excellent, but some are not very clear, and a few are slightly misleading. Nevertheless the great majority are well chosen and carefully executed, form and structure being faithfully portrayed, although artistic licence has occasionally been employed to a startling degree with regard to colour.

This welcome and original volume is a very gallant and worthwhile attempt to accomplish the extremely difficult task of portraying the infinite complexity of evolution within a strictly limited space in a manner comprehensible to the general reader. However, in this reviewer's opinion it remains doubtful whether in fact a reader unfamiliar with biological terminology will find all of the considerable volume of information condensed within this book easily understandable.

J.D.L..

Worlds of Nature, narrated by **Rutherford Platt.** Pp. 175 with 273 colour photographs. Rathbone Books, London. 25/-.

Based on the Walt Disney Motion Picture Series of true-life adventures, Mr. Platt tells the story simply and graphically of seven distinct types of wonderland and of the creatures that inhabit these various worlds. From Arctic regions and the Rocky mountains, through swamp, prairie, and the great American desert to a high plateau in eastern Africa, we are shown the mammals, large and small, reptiles and birds, spiders and insects, against a varied background of characteristic vegetation. No fewer than 40 American nature-photographers have been responsible for the illustrations, and although the general standard is below that of the British, many of the pictures straight from the wilds are unique. Some of the colour is quite fantastic, successful when depicting a blazing forest, but failing badly when portraying the larvae of bees in their waxen cells. The book is recommended to young nature-lovers.

J.A.

The Young Naturalist's Year, by **Fred J. Speakman.** Pp. 176 with 8 plates. G. Bell & Sons, London, 1958. 12/6.

Fred Speakman is an enthusiast. He writes for his youthful counterpart with an account, month by month, of his own questings among the intimacies of the natural world and makes suggestions for what he does not scruple to call ' work ' which will, if they are carried out, make first-rate field naturalists out of his readers. The book can be commended to the young for their pleasure and their profit.

E.H.

How to Know the American Mammals, by **Ivan T. Sanderson.** Pp. 168 with 183 illustrations. Frederick Muller Ltd., London, for Mentor Books, New York, 1958. 35*c*.

This is a pocket guide to the mammals of North America, so economically produced as to slip readily into the pocket and yet so comprehensive as to meet the needs of all but the specialised mammalogist. The author is accomplished and the work authoritative.

E.H.

West Australian Wildflowers. Published in Great Britain by Angus & Robertson Ltd., London. 5/-.

The south-west corner of Australia is justly famous for its splendid and unique flora. This little book consists of pleasing reproductions of 22 colour photographs of characteristic species in the West Australian flora, including some of the best known, such as Red-flowered Gum, Red-stemmed Kangaroo Paw, and Sturt's Desert Pea.

J.D.L.

Ornithological Report for Northumberland and Durham for 1957, by **F. G. Grey.** Nat. Hist. Soc. of Northumberland and Durham and Newcastle-on-Tyne. Pp. 36. 3/6.

Transactions of the Natural History Society of Northumberland, Durham and Newcastle-on-Tyne, Vol. XIII, No. 1. Containing: ' Ornithological Report on the Farne Islands for 1957 ' by Grace Hickling and ' Contributions to the Study of the Farne Islands ' by King's College Nat. Hist. Soc. (a) ' General Introduction ' by W. B. H. Sowerby. Pp. 32. 3/6.

The retirement of Mr. G. W. Temperley, who has compiled the Report yearly since 1933, is recorded with regret, in which we share whilst wishing all success to Mr. Grey.

After discussion of ' Weather Conditions and Birdlife', ' Bird-Ringing ' with recoveries, and ' Nesting-box Returns,' the ' Classified Notes ' follow. Passage of Sheld-ducks through the Tyne Gap was noted as early as June 25th. Among raptorials, Golden Eagle, Goshawk, Honey Buzzard, and Osprey are recorded. Fenham Flats had *ca.* 50 Little Stints on September 20th. A Mediterranean Gull watched frequently in the early months was probably the same bird recorded on August 1st. Such occurrences as the considerable movement of Little Auks in October to November, of Titmice in September-October, of Warblers, etc., in late September, and many others are highly interesting to compare with events in Yorkshire, where the Yellow-browed Warbler has never yet been recorded as late as the one at Fenwick on December 15th.

A separate report on the Farne Islands is well justified but inclusion of all records for the north-east area of each species in one place would help to ensure that important items are not overlooked by those compiling reports of the status of a species in Britain, and also be a convenience to other students. Details of bird-ringing and of recoveries are included, the latter mainly of Cormorant, Shag, gulls and terns. Apparently there were no recoveries of passeres outside the area.

R.C.

The London Bird Report for 1957. Edited by **F. H. Jones** with a Committee of six. Pp. 54. 5/-.

Covers a circle of 20 miles radius from St. Paul's Cathedral, the six counties within the circle being indicated by initials. An introduction reminds members that Wetmore-ordered records sent in promptly, three times a year (August, November, and the first week of January), could help considerably towards earlier production of the Report. Among the numerous items are: a Yellow Wagtail wintering at Beddington S.F., where 3,666 birds were ringed; 23 pairs of Little Ringed Plovers bred; the Black Redstart habitat is being reduced by building operations; 40 Little Stints in late September at Perry Oaks S.F.; and a Mediterranean Gull at Barn Elms on September 20th. The widespread Tit movement reached a peak in the second half of October.

The ordered list is followed by a paper by R. C. Homes on 'A Ten-year Review of Duck Counts in the London Area ' and by two shorter papers and a book review. An excellent Report.

R.C.

Photograms of the Year, 1959: The Annual Review of the World's Photographic Art. Published for *Amateur Photographer* by Iliffe and Sons Ltd. Pp. 136, including 104 plates, 8 in full colour. $10\frac{3}{4}'' \times 8\frac{1}{2}''$. Price 18/6 net (postage 1/9).

Pictorial photography and portraiture have probably reached the limit of technical perfection; it is therefore the aim of *Photograms* to display annually the choicest examples of the photographer's craft selected on the basis of their merit as works of art. The best have the power to command sustained attention and give to the viewer a continued sense of pleasure and satisfaction. In some instances the reasons for inclusion are not easily appreciated though R. H. Mason's analytical comments on each plate bring out their technical merits even if they may not convince every viewer that the picture is a work of art. There are also included articles by Mervyn Levy on photography from an artist's viewpoint, by R. H. Mason on ' Pictorial Photography in Monochrome and Colour ' and a review of the year's photographic work throughout the world by Margaret Harker. As always in this work the quality of the reproductions matches the very high standard of the photographs themselves.

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PRINCIPALLY FOR THE NORTH OF ENGLAND

Edited by

W. A. SLEDGE, Ph.D., B.Sc., THE UNIVERSITY, LEEDS

with the assistance as referees in special departments of

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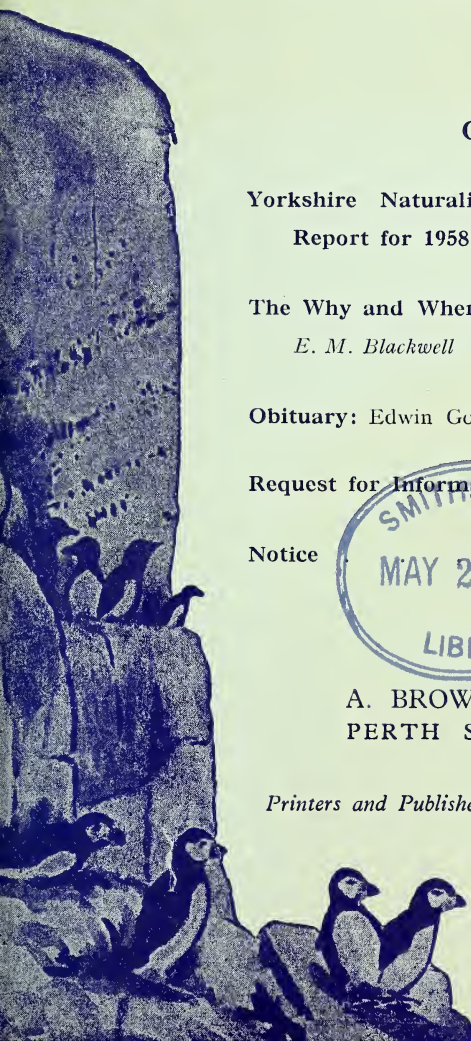

Contents

PAGE

Yorkshire Naturalists' Union: Ornithological Report for 1958 37-74

The Why and Wherefore of the Soapy Potato—*E. M. Blackwell* 74

Obituary: Edwin Goldthorp Bayford—*W.D.H.* . 75-76

Request for Information—*R. F. Dickens* . . 76

Notice 76

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MAY 26 1959
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Spurn Bird Observatory

We feel strongly that it is little use asking casual visitors to Spurn to keep entirely away from the tern's nesting areas unless naturalists are prepared to do the same. The two committees therefore appeal to all naturalists to do this during the 1959 nesting season. It has been decided that this year the little terns shall not be ringed, photographed, or even watched, except at a distance sufficient to avoid putting the birds off their eggs. Untended eggs chill, and predators are helped. All eggs on the Peninsula are protected by special order.

R.F.D., G.H.A.,
E.W.T., R.C.

Y.N.U. Subscriptions for 1959 (**20/-**) were due on January 1st, and should be sent to The Assistant Treasurer, Mr. G. A Shaw, Botany Dept., The University, Leeds, 2.

Copies of Mr. A. A. Pearson's Papers, Mycena, The Genus Lactarius, and The Genus Inocybe, and second editions of British Boleti and The Genus Russula, price 2/6 each, and Mr. P. D. Orton's Cortinarius Part 1 and 2 price 7/6 each, may be obtained, from the Editor of *The Naturalist.*

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York District: E. W. Taylor, C.B.E., F.R.S., M.B.O.U.
Spurn Bird Observatory: *Hon. Secretary:* G. H. Ainsworth, 144 Gillshill Road, Hull.
General Editor: Ralph Chislett.

Report for 1958

In the early months snow fell fortnightly, and sometimes heavily. During frequent frosts temperatures fell to zero for short periods. There was much hard-weather movement by birds. Spring came late. May and June had much rain and were generally cold, reservoirs being nearly full at the end of June. The wet took its usual toll of young birds; and the nesting season was not good. Much mud usually attractive to waders was under water in August. The dry period looked for in autumn never materialised; but there was much fog. Snow fell on December 10th.

The Spurn Bird Observatory
(G. H. Ainsworth and R. Chislett)

The Hon. Secretary can justly claim an outstanding year, with 4,646 birds ringed of 70 species, or 1,132 more than the previous highest for a year (1951); and an increase of 1,864 over the figure for 1957. Six species were ringed for the first time: Shag, Slavonian Grebe, Tawny Owl, House-Martin, Richard's Pipit and Short-toed Lark, the last-named being a new species for the county. The white-spotted form of Bluethroat was trapped in April—all our Bluethroats have previously been thought to be Red-spotted. The big increase in numbers consisted largely of Linnets, Greenfinches, Chaffinches and Snow-Buntings ringed mostly in the early months, and of warblers, flycatchers and Blackbirds in the late summer and autumn. Much of this added success was due to efforts of those who braved the cold weather of January to March, which also brought the finches and buntings. Milder weather then would probably have brought fewer birds to Spurn, and finer weather later in the year could have made differences in either direction.

The Observatory was manned on 266 days in the year. Week-ends were almost all covered, sometimes overcrowded. Vacant periods during which coverage could not be arranged were mainly in the winter months, and in June. The period from July 9th to November 11th was covered entirely.

Visitors have included parties from educational centres and from natural history societies, and individual ornithologists from South Africa and Germany. A B.B.C. recording of the proceedings of a party watching migrants, arranged by Miss B. Lonsdale, was interesting when subsequently broadcasted in 'Children's Hour'—by request Spurn was not named, but voices were recognisable.

Picknickers were rather troublesome on fine week-ends in summer, some to the detriment of the terns. The Secretary of an ornithological society that had chosen August 17th for a visit, when writing to express his thanks, added: 'the biggest bugbear was the hosts of "beach-lollers" with portable radios, deckchairs, tents, and rubber-ducks, etc.' A change in ownership may perhaps help such extremes of disturbance to be avoided.

Our work has been helped by many people in various ways; not least by Mr. Gordon Bird, whose sacks of seed for bait have contributed so largely to successful trapping and ringing, and have kept alive the memory of his (and our) friend, the late Mr. Eric Firth.

E. S. Skinner has described experiences during two busy periods, one in early April, the other in early September, with a table showing ringings of ten days. Migration was visible in other areas in the same periods as references to the species

SMITHSONIAN INSTITUTION MAY 19 1959

	Total to 31/12/57	Ringed in 1958	Total 31/12/58
Slavonian Grebe		1	1
Storm Petrel	1		1
Fulmar	1		1
Shag		1	1
Mallard	1		1
Scaup	1		1
Long-tailed Duck	1		1
Common Scoter	1		1
Sheld-duck	2		2
Sparrow-Hawk	18	2	20
Merlin	2		2
Kestrel	17	1	18
Red-legged Partridge	28		28
Partridge	6		6
Pheasant	2		2
Corncrake	1		1
Water-Rail	4	3	7
Moorhen	12	1	13
Oystercatcher	4		4
Lapwing	3	8	11
Ringed Plover	101	5	106
Turnstone	1		1
Common Snipe	2	1	3
Jack Snipe	1		1
Woodcock	6		6
Green Sandpiper	1		1
Wood Sandpiper	1		1
Redshank	12	4	16
Dunlin	64	21	85
Common Gull	6		6
Little Tern	77		77
Razorbill	2		2
Little Auk	1		1
Guillemot	9		9
Puffin	2		2
Wood-Pigeon	2		2
Turtle Dove	2		2
Cuckoo	101	2	103
Little Owl	5		5
Tawny Owl		1	1
Long-eared Owl	5		5
Short-eared Owl	1		1
Swift	3		3
Hoopoe	1		1
Great-spotted Woodpecker	4		4
Wryneck	16	11	27
Short-toed Lark		1	1
Skylark	152	45	197
Swallow	313	19	332
House-Martin		2	2
Sand-Martin	34	2	36
Carrion Crow	2	1	3
Rook	4		4
Jackdaw	9		9
Magpie	18		18
Jay	1		1
Great-Tit	72	8	80
Blue-Tit	216	46	262
Coal-Tit	61		61
Willow-Tit	2		2
Long-tailed Tit	3		3
Tree-Creeper	3		3
Wren	230	46	276
Mistle-Thrush	3		3
Fieldfare	42	2	44
Carried forward	1696	234	1930

	Total to 31/12/57	Ringed in 1958	Total 31/12/58
Brought forward	1696	234	1930
Song-Thrush	568	49	617
Redwing	171	18	189
Ring-Ousel	13		13
Blackbird	2816	549	3365
Wheatear	134	11	145
Stonechat	28	6	34
Whinchat	168	20	188
Redstart	539	140	679
Black Redstart	38	3	41
Nightingale	6	1	7
Bluethroat	6	6	12
Robin	1124	95	1219
Grasshopper-Warbler	2		2
Reed-Warbler	10	2	12
Sedge-Warbler	156	7	163
Icterine Warbler	3	4	7
Blackcap	63	14	77
Barred Warbler	11	2	13
Garden-Warbler	154	76	230
Whitethroat	1197	127	1324
Lesser Whitethroat	61	8	69
Willow-Warbler	1336	248	1584
Greenish Warbler	1		1
Chiffchaff	76	12	88
Wood-Warbler	13	1	14
Yellow-browed Warbler	4	1	5
Goldcrest	289	16	305
Spotted Flycatcher	117	29	146
Pied Flycatcher	517	104	621
Red-breasted Flycatcher	7	3	10
Hedge-Sparrow	550	94	644
Meadow-Pipit	802	44	846
Richard's Pipit		1	1
Tree-Pipit	11	17	28
Rock-Pipit	6		6
Pied Wagtail	2		2
White Wagtail	1		1
Yellow Wagtail	7		7
Waxwing	1		1
Great Grey Shrike	7		7
Woodchat Shrike	1		1
Red-backed Shrike	5	3	8
Starling	854	126	980
Greenfinch	1470	363	1833
Goldfinch	27	7	34
Siskin	4	1	5
Linnet	2149	849	2998
Redpoll, Lesser	10		10
Redpoll, Mealy	9		9
Bullfinch	2		2
Scarlet Grosbeak	1		1
Crossbill	4	2	6
Chaffinch	1355	346	1701
Brambling	363	17	380
Yellowhammer	80	14	94
Corn-Bunting	17	6	23
Red-headed Bunting	1		1
Ortolan Bunting	1		1
Reed-Bunting	517	77	594
Lapland Bunting	1		1
Snow-Bunting	930	398	1328
House-Sparrow	2260	484	2744
Tree-Sparrow	30	11	41
Total	22802	4646	27448

concerned hereafter will show, and there were other days when ' business was brisk ' at Spurn. On some days, the alternatives whether to concentrate on ringing, or on counting passing migrants, have to be faced. Usually both can be done by division of man-power; if otherwise, one works the traps, keeping one eye on what is happening around.

Particulars of many useful recoveries of Spurn-ringed birds can be found hereafter under the headings of Blackbird, Greenfinch, Linnet, Blue-Tit, Redstart, Black Redstart, Song-Thrush, Starling, Snow-Bunting and Red-legged Partridge. Some very interesting recoveries of birds ringed by our members elsewhere can also be found in their places.

BIRDS OF 1958 RINGED AT SPURN IN PREVIOUS YEARS

Re-trapped in 1958		Years when Ringed						
		1957	1956	1955	1954	1953	1952	1951
1	Pheasant	—	1	—	—	—	—	—
1	Red-legged Partridge	—	1	—	—	—	—	—
1	Swallow	—	1	—	—	—	—	—
7	Skylarks	3	2	2	—	—	—	—
1	Blue-Tit	1	—	—	—	—	—	—
10	Blackbirds	9	1	—	—	—	—	—
4	Whitethroats	2	2	—	—	—	—	—
12	Hedge-Sparrow	9	2	1	—	—	—	—
3	Meadow-Pipit	1	—	1	—	1	—	—
7	Starlings	5	1	1	—	—	—	—
22	Greenfinches	14	7	—	1	—	—	—
58	Linnets	40	16	2	—	—	—	—
1	Chaffinch	1	—	—	—	—	—	—
4	Reed-Buntings	2	—	—	1	—	—	1
5	Snow-Buntings	3	2	—	—	—	—	—
137		90	36	7	2	1	—	1

In the log for October 23rd, R. F. Dickens tabulated counts, made at the Narrow Neck, in short periods, covering most of that day of major passage. His method enabled the fluctuations in density of passage by the most numerous species to be followed, illustrating the ' bursts ' and ' lulls ' that occur on such a day. Passage by Redwings was at its height between 8-0 and 9-20 a.m., of Skylark and Chaffinch from 10-40 a.m., continuing to late afternoon at a reduced rate; Starling density of passage increased in late afternoon. During the day 3,421 Chaffinches passed, 1,019 Skylarks, 479 Redwings, 92 Fieldfares, 3,971 Starlings, 92 Snow-Buntings and 198 Lapwings, and fewer of other species. Probably many passed unrecorded. Directions of flight from the Narrow Neck were north, then west inland with the curve of the estuary bank, possibly after turning north into the wind upon arrival at the mouth of the Humber or maybe after first reaching the Lincolnshire coast. In late afternoon, with slightly improved visibility, some Chaffinches and Starlings turned southward. What a lot of imponderables have to be considered when attempting to assess migration !

The conditions that bring birds to Spurn also bring them elsewhere. We have the whole county to survey, and, working against time, I have tried to trace connections between records made in various areas, believing such adds to both interest and value. There are many matters to which I would like to draw attention if space allowed, matters mentioned under the heads of species, not always rarities such as Bluethroat, but sometimes concerning common birds like Blue-Tits. Those who are keen will find them. No one can watch at more than one place at once, which is the reason for part, an immediate part, of the value of this Report. The long-distance value of such reports lies in the help they give to anyone in the future who may essay the task of bringing up to date the county history of birds, who should find most of his needed material gathered together yearly in this one place. That is what I have tried to ensure year by year with generous help from a large number of people, some of whom can rarely get to our meetings.

I have tried to be fair to everyone, to keep an open mind concerning the authenticity of claims until adequate evidence is available and has been considered. There are very few now who send in a record of a rarity or difficult species, without stating

the details that form the basis of their diagnosis. Newcomers quickly assimilate this practice. Unusual occurrences are frequently reported as they occur. Many send lists periodically two or three times in the year. Such can be scheduled under the heads of species long before the year end; with any later records added in January. Lists that arrive after I have begun to write from completed schedules may mean alterations and additions that cause the typist to groan. Fortunately such are exceedingly few.

When ringing-traps were few, it became the practice to comment yearly on the working of each. With so many ringing-traps and ringers now operating in the county, I have thought it best to omit special reference to any, except in the results they have achieved which can be found brought together under the heads of the species concerned. Numerical competition is undesirable, and to bring together apparently under the heading of one area ringings from outside that area is not scientific. Members of the Harrogate Society alone ringed more birds than were achieved at Spurn.

Part II of *The Birds of the Spurn Peninsula*, the history of and the results obtained at our observatory since 1946, had to be shelved to get this Report written; it is moving again now. Part I was published during the year.

May I thank all who have helped so generously with their records; and especially my colleagues the Recorders for the North and East Ridings, and the York District, and G. H. Ainsworth and his colleagues of the Spurn Committee and their supporters.

CLASSIFIED LIST

B.O.U. Check List (1952) Order. 'Handbook' Numbers behind.

1. Black-throated Diver (378).—One occurred on January 14th and 15th on Hartwith Mill pond, Nidderdale (Miss R.H., M.R.S., A.F.G.W.). At Hornsea Mere dates were February 23rd (R.H., A.W.), April 11th and 19th (R.W.D.) and 23rd (A.V.). One at Spurn on June 1st was in summer plumage, and one was recorded on October 5th.

2. Great Northern Diver (376).—D.R. and P. Seaward recorded one off Redcar on March 16th, and one on October 16th and 17th, and D. G. Bell one off South Gare on November 30th. A large diver off Spurn on October 22nd had a heavy straight bill and might have been of this or the preceding species (R.F.D.). A Great Northern Diver, with primaries and secondaries completely moulted, was picked up near Kilnsea on March 1st and destroyed, so heavily was it oiled (R.F.D., M.R.S., etc.).

4. Red-throated Diver (379).—So many divers seen at Spurn are too far out for certain identification and are recorded unspecifically; most are of this species. *Circa* 30 were recorded on January 12th, and divers continued to be seen until June 18th. The next appeared on August 15th, the main autumn passage beginning in mid-September, with maxima of 50/60 on September 25th/26th; *c.* 30 on November 2nd; 38, November 29th; 50, November 30th; 107, December 13th; and 37 on the 14th and fewer to the year end. Concerning the great activity of December 13th the log (J.C.) mentions that 86 flew off-shore including a flock of 26 birds; a few others flew south, others crossed the peninsula and flew over the Humber; one party of six, after circling high, flew north-east.

Twelve flew north-west at Redcar in 30 minutes on March 12th, and the species occurred in Tees Bay until June 6th, with odd birds on June 22nd and July 6th, and the first of autumn on September 7th (P.J.S., D.R. and P.S., D.G.B. and others). On November 30th (not a very active time at Spurn) too many flew north-west and south-east to count, with 17 in one flock flying north-west (D.R. and P.S.).

There were occurrences on the coast between these strategic points: as at Whitby, three on November 23rd (M.A.); at Flamborough on dates in February, March (*c.* 35 on the 5th, 25 on the 9th (A.J.Wms.)), July and August. Single birds were at Hornsea Mere on February 23rd (R.H., A.V.), and on March 19th and April 10th (R.W.D.); and at Burton Constable Lake on April 21st (D.A.G.) and farther inland at Southfield Reservoir on March 22nd (R.J.R.).

5. Great- Crested Grebe (370).—One was recorded at Bottomboat on January 12th and the latest at Bretton Park on December 14th (E.G.).

The species maintained its numbers, occurring on at least 30 waters; attempted to breed on 24 waters, successfully on 22 but with only small broods. Altogether *c.* 70 young, mostly well grown, were recorded. There were 43 at Fairburn on May 1st (C.W.). Pertinacity is a characteristic of the species. Nests destroyed by floods,

or stranded, were replaced, sometimes twice, but disturbance on small waters caused birds to leave. Young were hatched in April, and as late as September, and were noted with adults in October. Some of the 31 at Swillington Ing on June 30th (A.H.B.L.) might have had their nests robbed elsewhere. Occurred on the sea about Teesmouth, 4 on August 1st (D.R. and P.S.) and single birds on several dates in October (D.G.B., A.J.V., G.P.); and at Spurn on February 8th and on a few dates from August 15th to December 21st, and at several places between the two.

6. Red-necked Grebe (371).—A grebe at Scaling Dam on October 25th was diagnosed from size and reddish-brown neck (M.A.).

7. Slavonian Grebe (373).—A grebe at Blackmoorfoot Reservoir on January 11th was considered probably of this species but clear views of bill and of extent of black on head were not obtained (J.C.S.E.). Two Slavonian Grebes gave good views to R. V. Jackson and others at Eccup Reservoir on March 2nd. One occurred close under the wall of Scarborough Marine Drive on February 2nd (J. R. Mather, C. Worrin). A grebe at Fly Flatts Reservoir in late September and early October was seen independently on the same and different dates by several people whose diagnoses disagreed, and was either this species or Black-necked—that two birds were involved is improbable. M. Densley described a small grebe seen near Monk Fryston on November 9th as having a straight bill and therefore of this species.

At Spurn on October 19th a Slavonian Grebe was brought in by Mr. A. Bird which had been found in the ditch between the ' Bluebell ' and the ' Crown and Anchor '; it seemed without injury so was ringed and released on the sea. It was probably a first-winter bird.

8. Black-necked Grebe (374).—See preceding species. A grebe at Fairburn on January 25th and 26th was probably of this species (A. Chapman).

9. Little Grebe (375).—Numbers rose at Swillington Ing from 21 on August 3rd to 65 on October 12th (A.H.B.L.). Small young were still being fed at Bretton Park on September 14th (E.G.). On August 11th at Fewston one caught a three-inch fish and swallowed it after a four minutes' struggle. Occurred on the Spurn ' canal zone ' on October 10th and 18th.

[**12. Leach's Petrel** (351).—A white rump and a ' petrel ' bill were seen clearly on a small dark bird between Pool and Leathley on August 17th but any fork in the tail was not noticed; they considered it to be this species from size. It was watched at *c.* 60 yards range through 12 × 60 binoculars (P.S., D.G.).]

14. Storm Petrel (350).—One was found at St. Andrew's Dock (fish), Hull, on October 17th (R.S.P.C.A., H.O.B.). It died next day.

16. Manx Shearwater (355).—As with divers, distant views often make diagnosis difficult of shearwaters passing over the sea. This species occurs much more frequently than any other shearwater along the Yorkshire coast. Occurrences began in 1958 with 12 at Redcar on June 24th and 25 on July 5th and August 11th (D.R. and P.S.). The first records from Flamborough (2), and at Spurn (6) were both on July 14th. A few continued to pass at Flamborough on some days during July—maxima 14 on July 23rd (A.J.Wms.), 21 on the 29th, 54 on August 10th (L.S., H.O.B.) and 29 on August 15th, when 22 were counted off Atwick (L.S.). Frequency at Spurn did not begin until August 11th and maxima were smaller—11 on August 11th and 15th, 15 on September 25th, and 13 on the 26th (which last two dates also showed much activity by divers). Two at Flamborough on September 26th were the latest noted there, but two were seen off Spurn on October 18th. One was picked up alive in Hull on September 11th (R.S.P.C.A.).

21. Sooty Shearwater (363).—Single dark shearwaters, except for light under wings were noted at Spurn on August 23rd and September 25th (G.R.E. and others). On the 26th, 34 Sooty Shearwaters were recorded (and see Manx) as flying north mostly in two movements during the afternoon, ' being nearer than usual they were easily identified ' (G.R.E., M.K.T., A.H.B.L.). One occurred *c.* five miles off Scarborough on October 12th (J.R.M., A.F.G.W., C.W. and others).

26. Fulmar (368).—Bred normally. Noted at Spurn in larger numbers than usual, viz. on a number of days in May-June, and daily in August in considerable numbers (maximum *c.* 170 on August 25th), with many fewer in September, and occasional birds on some days afterwards. Last seen at Bempton, two on September 26th (A. J. Wms.). Single birds were rescued in St. Andrew's Dock, Hull, on April 10th and December 17th (R.S.P.C.A., B.S.P.). *Circa* 30 were about the Saltburn cliffs on December 28th (D.G.B.).

27. Gannet (349).—Four young believed to be reared at Bempton (D.A.G., L.S., A.J.Wms.); two were still on the nesting ledge on September 26th (A.J.Wms.).

At Malham Tarn, early in the morning of March 30th, after a night of fog and drizzle, an adult Gannet flew round the tarn, diving occasionally, obviously searching. Once, near to the bank, after diving it came up with something too big to swallow, and left the dark object floating. When P. F. Holmes rowed out the dark object proved to be a dead Moorhen, which had probably dived when it saw the large bird overhead and been mistaken under water for a fish by the Gannet. An adult sat the water at Fairburn on July 16th (C.W.). A juvenile came down to Ogden Reservoir on September 22nd and was later released near Filey (C. Williamson, R.S.P.C.A.); another was picked up near Hull on October 15th (R.S.P.C.A., B.S.P.). Coastal occurrences were normal, *c.* 150 being the maximum for a day at Spurn on September 25th.

28. Cormorant (346).—This species, and/or the Shag, can almost always be seen about the Humber mouth, often too far away for separation. Cormorants of the ' southern type ' occurred at Redcar on March 23rd (D.R. and P.S.); and off Saltburn on March 15th—it was glossed green (D.G.B.). Nineteen passed north off Flamborough on April 7th, and 11 on the 9th (A.J.Wms.). Inland occurrences were: one at Fairburn on April 20th (R.H.); and two on June 15th (C.W.); one near Sheffield, March 29th (D.R.W.); two over Ossett flying east on April 30th (A.F.). News of the state of the few small breeding colonies did not reach me.

29. Shag (348).—Young were seen in three nests near Flamborough; where 18 were juveniles in a group of 39 on August 24th (A.J.Wms., H.O.B.). Twelve passed south off Scarborough on October 12th (J.R.M. and R.C.P.). One was dead on Saltburn beach on March 24th. Two were at Rivelin Dam, Sheffield, for some weeks from April 26th (S. G. Spickett and P. E. Meeks). Identified about the Humber mouth on several occasions.

30. Heron (289).—Nests counted numbered: Gargrave 7 (timber felled, moved to new site) (O.M.P.); Whixley 7 (R.C.); Hornsea Mere 22 (F.E.C., H.O.B.); Harewood 5 (O.M.P. and others); Bolton-by-Bowland 4 (A.P.); Moreby Park 14 (E.W.T.); Ryedale 4 (E.W.T.); Fadmoor 3 (E.W.T.). The heronries at Healaugh, Scampston, and Gilling were not counted. Odd birds and parties occurred at many places; one of two at Farnley on April 11th had salmon-pink bill and legs (D.B.I.). One came in from sea on July 30th at Redcar (D.R. and P.S.); those at Spurn on various dates seemed likely to be from Hornsea Mere.

Ringed 8/5/57 near Tadcaster; near Bedale, 9/4/58 (R.F.D., P.Q.).
,, ,, ,, ,, ,, Rotherham, 28/6/58 (R.F.D., P.Q.).
,, ,, ,, ,, ,, Wetherby, 25/5/58 (R.F.D., P.Q.).

38. Bittern (297).—At least eight have occurred—one at Fairburn on January 4th (J.G.) and 12th (C.W.); one shot at Finningley, January 4th; one sent to Doncaster Museum on January 22nd from near Conisborough (R.J.R.); one by the Hornby lakes from February 8th to 24th (G.R.P.); an exhausted adult male at Middlesbrough on February 8th that died (P.J.S., A.B.); one in a flooded hayfield at Hollym Carrs on August 14th (A. Credland); one at Fairburn on August 31st (C.W.); one flushed near the Aire at Cononly on October 26th (Crosshills N.S. per E. Greenwood); and one found dead near Almholme, Doncaster, on December 7th (J. D. Gelder, R.J.R.).

42. Spoonbill (287).—One circled over Hornsea Mere at *c.* 300 feet and flew seaward on May 27th (W. T. Wright).

45. Mallard (317).—Ducks have had good reportage for a number of years. As the maxima on more than 30 inland waters, their rise to and fall from the peaks, showed much the same pattern as in recent years, with no serious diminutions or increases in numbers of Mallard, allowing for movements between waters which cancel out each other, I propose merely to say so; and to mention only a few other facts that are fresh. The new Scaling Dam showed a maximum of *c.* 500 on December 25th (M.A.).

During recent years the comparative abundance of Mallard and Widgeon at Spurn in autumn has been changing, concerning which I must get out data for Part II of the Spurn Book.

Northward movement of ducks (and some other species), including Scaup, Goldeneye, Pochard, Tufted Duck, Scoter, was noted on the east coast including both Spurn and Teesmouth from October 16th to 19th, and accretions were noted

at Leighton, Gouthwaite, and other waters in the same period. A pure white Mallard on ice at Hornsea Mere on January 14th had pinkish bill and legs (J.C.H.L.).

46. Teal (319).—Much the same applies to Teal, as I have written of Mallard in the first and last paragraphs. Peaks occurred of *c.* 350 at Fairburn on January 12th (R.H.), of *c.* 200 at Thrybergh Reservoir on the 18th (J.B.H., W.T.), of *c.* 90 at the Hornby Lakes on the 11th (G.R.P.). The early months were severe and numbers decreased with ice; but floods that followed the thaw attracted large numbers, as at the Stanley Fields, near Wakefield, with *c.* 150 on March 16th (G.C.), and the Derwent Valley floods with *c.* 540 on February 22nd which had risen to *c.* 1,160 on March 2nd and remained large for at least three weeks (A.F.G.W.) and had still *c.* 400 on April 20th (C.W.F.H.). *Circa* 300 were on the upper Humber on April 11th (S.M.). Broods were seen at a number of places. Numbers built up in the autumn, no doubt as immigrants arrived. *Circa* 320 were at Fairburn by September 10th (C.W.) which were flushed on the 13th by a Marsh Harrier (A.F.). Farnley Lake had *c.* 100 on October 21st (J.R.G.). Scaling Dam had *c.* 150 on October 25th (M.A.), and Hornby Lakes *c.* 140 on December 14th, and there were smaller numbers on many waters before the year-end. At Spurn occurred in small numbers in early April, and in larger numbers from end of August to November, maxima *c.* 90 on September 19th and *c.* 154 on November 2nd counted passing south in the morning (J.C., D.J.R.P.).

47. Garganey (322).—One was on floods near Bubwith on April 13th (C.W.F.H.). Two were at Fairburn on March 30th (R.F.D., C.W.) where a maximum was reached of 16 on September 4th (C.W.) and two were there on October 5th (K.S.). Also occurred at Hangthwaite on April 7th and Wath Ings on May 4th (R.J.R.).

49. Gadwall (318).—A few occurred somewhere, more frequently than usual, from January 5th (a pair at Bottomboat (K.S.), and three at Wintersett Reservoir (F.H., M.P.), and a drake and duck there on the 19th (M.N.R.)), in every month to November excepting February. Other waters concerned were Fairburn (17 on August 30th (C.W.)), Swillington Ing, Mickletown Flash, Stanley floods, and Hornsea Mere, with single birds at Copgrove on March 5th where a drake courted a duck Mallard (A.F.G.W.), at Gouthwaite on July 23rd (I.C., M.R.S.), and at Eccup on September 6th (G.R.N.). Four were at Spurn on October 17th and one on November 4th and 10th. Breeding was possible but not proved.

50. Wigeon (323).—Generally Wigeon are fewer in winter than some years ago. Maxima are smaller on several waters, those concerned with which might like to get out comparative figures. *Circa* 800 were at Patrington Haven on January 26th (A.C.) and might represent flight from ice on still waters. After thaw had brought floods large numbers were recorded on them. *Circa* 200 were on Stanley flooded fields on March 16th. Numbers on the floods of the lower Derwent Valley eclipsed all others: *c.* 2,140, February 22nd; *c.* 3,740, March 2nd; *c.* 3,000, March 22nd (A.F.G.W.); *c.* 2,000, March 23rd (H.O.B.); *c.* 1,500, Wheldrake Ings, April 6th (S.M.); *c.* 4,000-5,000, April 20th (C.W.F.H. and M.R.S.), and *c.* 470, April 23rd (C.W.F.H.). Some of these figures might result from different methods of counting, but they are all large, and together tell a story, but not of whence they came. Parties of up to 30 passed Scarborough southward in the morning of March 31st against a strong south-east wind (A.J.W.).

The species bred in the county, the tendency towards which confuses dates of last and first appearances. Twelve were at Gouthwaite on September 7th (A.F.G.W.), and seven off Redcar on September 10th (D.R. and P.S.). Coastal passage occurred at Teesmouth on October 18th (110) and 19th (147) (P.J.S., D.R.S., etc.), on which latter date *c.* 60 appeated at Gouthwaite. At Spurn, after a few from August 26th, 57 appeared on September 18th, and 210 on the 19th, after which numbers fluctuated very much but did not exceed 100 until November 2nd (*c.* 120). There was a belated return to the figures of our earlier years at the Observatory with *c.* 200 on December 13th-14th, and *c.* 300-400 December 29th to 31st.

52. Pintail (325).—Occurred at 16 places, with maxima of six at Fairburn on January 12th and 19th, and six at Spurn on October 18th. The Derwent Valley floods showed unusual numbers, from 44 on February 22nd (A.F.G.W.) to 59 on April 23rd, *c.* 300 having been there on April 20th (C.W.F.H.), a larger number than previously recorded inland in Yorkshire. One at Eccup on August 6th was the earliest of autumn (G.R.N.), the next being on September 3rd at Fairburn (C.W.), and on September 14th at Scaling Dam (D.G.B.). Other waters where Pintails

occurred were—Hornsea Mere, Codbeck Reservoir, Lockwood Beck Reservoir, Gouthwaite, Leighton, Harewood, Swinsty, Worsborough Reservoir, Hollin Hall Pond, Patrington Haven, and near Saltburn.

53. Shoveler (326).—Recorded at 19 places; bred successfully at at least one, possibly at another, and unsuccessfully at a third. Included were the Derwent Valley floods with *c.* 20 on March 2nd (A.F.G.W.), with *c.* 30 on April 6th (S.M.), *c.* 60 on April 20th (M.R.S.) and 31 on April 23rd (C.W.F.H.); Swillington Ing with *c.* 30 in mid-September, and Fairburn Ings where some numbers were visible at both ends of the year with maxima of *c.* 100 on October 5th and November 9th (K.S., R.H.). A few occurred at Spurn on nine days in April, on two days in July, on 12 days from August 10th to September 13th, and on five days later.

[**Mandarin.**—A duck at High Royd on December 26th was considered to be of this species (R.Cr., T.K., J.M.R.).]

55. Scaup (331).—A few were noted in the early months at Teesmouth and Spurn, at Welton Water, Fairburn and Blackmoorfoot and Lockwood Beck, on the Nidd, and especially on Hornsea Mere where maxima reached 32 on April 15th and 17th (R.W.D.) with the last on May 10th (8) (B.S.P.). The last at Teesmouth was noted on May 18th (D.G.B.).

A duck Scaup at Wath Ings on June 15th (J.C.H.L.) and one at Gouthwaite on July 20th were curious, as also were single ducks there on September 14th and October 18th (A.F.G.W.), and at Glasshouses Dam on October 3rd and 4th (M.W.); possibly all of one bird. Thirteen drakes were noted at Spurn on July 26th (C.W., G.R.B.). On October 18th, *c.* 112 flew north at Teesmouth (P.J.S.), being part of considerable movement by ducks (see under Mallard); and odd Scaup appeared at, several waters about that date (Fairburn, Gouthwaite, Leighton and Eccup (6); and continued to be recorded occasionally. The most remarkable inland records came from Blackmoorfoot Reservoir: seven on November 27th and 14 on December 7th (E.C.J.S., R.Cr.). Spurn had its maximum, again of 13, on December 26th (C.W. and others).

56. Tufted Duck (330).—Bred at a number of places. Occurred on most waters, with maxima of *c.* 140 at Welton Water on January 4th (B.S.P.), 65 adults at Malham Tarn on July 18th (J.E.B.), 60 at Gouthwaite on July 20th (A.F.G.W.) and 219 at Fairburn on December 27th (R.H.). The most generally distributed duck excepting the Mallard.

57. Pochard (328).—Bred by several waters, and occurred regularly by many more, with maxima exceeding 100; of *c.* 190 at Fairburn on January 19th (R.H.), and *c.* 350 on November 10th (C.W.); at Wintersett, *c.* 100 on December 20th/21st (E.G., J.C.S.E.); at Hornsea Mere, *c.* 300, February 23rd and *c.* 350 on November 2nd (R.H., A.V.); and on the Derwent Valley floods, *c.* 150 on March 22nd (A.F.G.W.).

60. Goldeneye (332).—Was recorded from 32 waters, in all five vice-counties, with maxima in spring of 35 at Fairburn on April 7th (A.F.), 22 at Gouthwaite on March 30th (A.F.G.W.), and 23 at Fewston on April 13th (A.M.C.D.); a pair at Copgrove on May 13th (R.H.) were the last seen, unless an immature drake at Harewood on June 29th (A.H.B.L., E.C.S.) could be so included. An immature bird asleep on Gouthwaite on July 19th that stayed to August 3rd (A.F.G.W.) is also puzzling. Two at Fairburn on September 24th (G.C.) were the first of autumn.

The passage of ducks at Redcar and Teesmouth on October 17th and 18th has been referred to under Mallard and Scaup. Goldeneyes were involved, and 57 passed north-west at Redcar between 0700 and 0825 hours on the 18th (D.R. and P.S.). The following records seem to have connection with this movement: Blackmoorfoot, 21 on October 18th were first arrivals. The first (8) reached Gouthwaite on the 18th. On the 19th there were 20 at Eccup (M.D., G.R.N.), 14 at Grassholme (D.S.S.), 3 at Fly Flatts Reservoir (V.S.C., I.M., C.R.S.), and 34 at Leighton (E.E.J.) where Pochard (17), Tufted Ducks (16), Common Scoter (2) and a male Scaup were also unusual occurrences—all of them soon passed on, as did many of the Goldeneyes at Blackmoorfoot and Eccup. Parties of 4, 5 and 7 Goldeneyes were off Hornsea on October 19th (M.K.T.), when odd birds also occurred at several places.

Autumn maxima of Goldeneye were: 20, Grassholme, November 25th (D.G.B.); 31, Fairburn, December 6th (K.S.); Gouthwaite, 20, on December 20th (A.F.G.W.). Spurn occurrences were few and spasmodic, with two on October 18th and eight on November 2nd.

61. Long-tailed Duck (334).—Occurred at Hornsea Mere, one on January 19th (R.H., A.V.); at Fairburn, two on February 15th and 16th (R.J.R., J.B.H.,

R.F.C., K.S., etc); at Chelker Reservoir, one on April 16th (W.F.F., O.M.P.), and at Thrybergh Reservoir, one on May 5th (J.C.H.L.). Up to seven were seen off Redcar on various dates from January 18th to April 19th, and off Huntcliffe, Saltburn, from February 2nd to March 2nd—probably the same birds were involved (D.R. and P.S., D.G.B., P.J.S.); both sexes were included. One flew north across Teesbay on October 17th (P.R.), and five on October 18th (P.J.S.), on which date one, possibly more, flew north off Spurn (J.C.).

62. Velvet Scoter (340).—The two at Wintersett Reservoir on December 22nd, 1957, remained up to January 19th, 1958 (M.N.R., E.G.). A drake was at Ogden Reservoir, Halifax, on August 21st-22nd (C. Williamson).

One or two occurred about Teesmouth and Redcar from January to March (D.R. and P.S., D.G.B.). One was off Redcar on May 17th and July 2nd (D.R. and P.S.). R. Hardcastle recorded 11 (2 males) off Flamborough on August 26th. October 18th showed one at Redcar (D.R. and P.S.), ten that flew across Teesbay (D.R.S., P.J.S.), one off Hornsea (M.K.T.), and five off Spurn (J.C.). Single birds were recorded at Spurn on seven days from May 27th to October 17th inclusive.

64. Common Scoter (339).—Occurred as usual on a number of inland and moorland reservoirs. *Circa* 250 at Swinsty Reservoir on June 28th, with both sexes included, was the biggest flock ever recorded inland in Yorkshire (C.G.B.). Six males were at Malham Tarn on June 17th (P.F.H.). Eccup Reservoir had 16 on July 10th and 60 on August 9th with smaller numbers between and after (M.D., G.N.R.). With *c.* 60 that flew west-north-west at 1950 hours on August 12th over Ossett, following the northern edge of the Calder Valley (J.C.), there appears to be no link on any water; probably they continued beyond the county. Blackmoorfoot Reservoir had up to five on some days from June 19th with 31 (16 males) on October 18th (E.C.J.S., A.V.S., R.Cr.), when two were at Leighton (E.E.J.). On October 18th, *c.* 250 crossed Teesbay northward (P.J.S.); parties passing northward at Spurn on the 17th totalled to 148 and on the 18th to 459. If those two days had been covered elsewhere on the coast by watchers the results might have been very interesting.

None of the several other records of inland Common Scoters seem to call for mention. On the coast, *c.* 300 were off Flamborough on May 4th and 16th (A.J.Wms.). *Circa* 500 were off the Humber mouth on July 12th and ' rafts ' continued to be seen, rising to an estimate of *c.* 700 on July 26th, but Spurn numbers were much smaller on most days until October 18th.

67. Eider Duck (337).—Recorded at Flamborough in every month of the year, and frequently up to early August. Maxima were 71 on January 9th; 74, March 1st; 61, April 9th; after which numbers fell steadily, down to only odd birds on some days from October to December. No adult male was recorded, but by late September the males remaining were probably second winter birds (H.O.B., A.J.Wms.). Twelve were recorded at Spurn on April 27th, with only odd birds occasionally after until September 27th (19), up to nine on three days to November 6th (45), when two parties of motley drakes swam close inshore at 7-0 a.m., and later a mixed flock of 33 flew down the Humber channel and out of sight. Fifteen in two parties flew north on December 25th.

Only a few occurred on the Yorkshire side of the Tees estuary during January to April. A duck at Eccup on November 2nd was thought possibly to be of this species (G.R.N. and R.V.J.).

69. Red-breasted Merganser (343).—A pair occurred on a north-western water in spring and summer with no evidence of breeding. The bird at Wintersett in December, 1957, was seen on January 12th and 19th (M.N.R.), and a male on March 8th and 9th, and a female on October 20th at Hemsworth (M.N.R.). Two occurred at Gouthwaite on November 8th and 9th (A.F.G.W.) and one at Leighton on November 15th and 23rd (E.E.J.) and at Fairburn on several dates from November 23rd to December 31st (J.D.P., R.H.).

Occurred off Redcar on January 1st, April 7th and September 4th, when a Skua chased it (D.R. and P.S.). Three were in the Tees estuary on April 29th (D.G.B., K.P.), and one on October 12th. On October 18th 23 flew north across Teesbay (P.J.S.) and 12 flew north-west (4+6+1+1) at Redcar (D.R. and P.S.). Single birds were seen at Spurn on a number of days, mainly after July, with three on July 12th and four on November 2nd. The Humberside had one at Stone Creek on February 9th (R.H., A.V.) and two at Patrington Haven on April 6th (L.S., H.O.B.). One was at Hornsea Mere on April 17th (R.W.D.).

70. Goosander (342).—Fifty-two on March 23rd at Eccup (R.V.J. and G.R.N.) and *c.* 70 on March 30th at Stocks Reservoir (J.K.F.), and 45 on Hornsea Mere on February 23rd (R.H., A.V.) and March 19th (R.W.D.) show the status of the Goosander as fairly constant. Only small numbers were recorded for 15 other waters. At Eccup the last was recorded on May 8th and the first on October 4th, building up, mainly in November, to *c.* 25-30 by the year end (G.R.N.).

71. Smew (344).—Single birds (none of them males) occurred at Fairburn from January to March 14th (R.F.C., J.D.P., W.C.W. and others), and at Harewood in the same period with two on some days (D.B.I., J.R.G., G.R.N., M.D.), and three at Eccup on March 2nd (R.V.J.). A Smew was at Hornsea Mere on April 19th (R.W.D.) and a male occurred at Spurn on April 5th (R.C.P.).

73. Sheld-Duck (315).—Plentiful about the Upper Humber from January to September, with maxima of 148 at Welton saltings on January 12th (B.S.P.); *c.* 120 near Brough on April 11th (S.M.) and *c.* 200 on April 12th (B.S.P.)· 217, Redcliff Sand, July 12th (B.S.P.); and *c.* 250 near Broomfleet on August 30th, when many juveniles were included (H.O.B.). Fluctuated at Spurn with maximum of *c.* 100 on April 9th; fell in May to a few breeding birds, with occasional sudden increases. On July 26th *c.* 70 flew out to sea in several parties (moult migration). After September none appeared at Spurn on many days. Twenty-four moved south over the sea near Aldbrough on November 2nd (B.S.P.), and five came in off the sea at Redcar (A.F.G.W.). Teesmouth occurrences were few on the Yorkshire side. Odd birds appeared on several inland waters—six, Fairburn, January 26th (W.C.W.), and a few others later; one, injured, by the Aire at Apperley Bridge on January 25th (E.E.J.); one, Ogden Reservoir, February 8th (R.G.H., D.R.W.); four near Methley on March 3rd (R.F.D.); two at Blackmoorfoot on February 17th (C.R.S.) and three on April 19th (E.C.J.S.); one at Sawley on February 2nd (A.F.G.W.); two at Gouthwaite on July 23rd (A.C., A.F.G.W.); one at Lingerfield G.P., August 30th and September 19th (M.R.S., A.F.G.W.); four, Glasshouses Dam on November 2nd (A.S.); and one on December 2nd at Eccup (K.B.), and on December 9th and 14th at Blackmoorfoot (J.C.S.E., E.C.J.S.). Occurred in spring at Swillington Ing (A.H.B.L.).

75/78. Grey Geese, mainly Pink-footed (303-307).—Odd birds joined Canadas and remained late at Bretton, Harewood, and Masham, where three grazed, flew, and swam about all the waters until April 30th (E.E.J.). *Circa* 50 flew very high over Roundhay, Leeds, on May 14th and were probably the latest (R.V.J.). *Circa* 40 at Redcliff sand on September 20th (B.S.P.) were the first of autumn.

Far more grey geese skeins were reported than can possibly be quoted; almost all were pink-feet, directions of flight varied. September 28th to 30th was the first period of general activity. Bigger movements came in October, especially in the north-east where P. J. Stead estimated that a total of 1,196 passed southward or south-east over Cleveland between the 9th and 13th and many more passed unseen. *Circa* 330 flew south at Spurn on October 13th in several parties. On October 27th 531 remained settled on estuarial mud near the Chalk Bank for all to see, eventually departing north-westward. The morning flight to the Wolds from Broomfleet on October 31st was estimated at *c.* 6,000 birds (R.H., A.V.); some later estimates exceeded 10,000. During November small flights left the Humber Refuge for Lincolnshire and persistent fogs confused both geese and watchers, some parties departing from the more normal journey to the Wolds, to feed on low ground near to the river. Blight was causing farmers to lift potatoes early, which may have made ' chat ' potatoes available for geese before the corn harvest was all led, and induced the birds to alter their feeding-grounds (W.A.B., H.O.B.). Mr. Adam Gordon reported *c.* 500 flying south-west over Duncombe Park on November 4th.

A Pink-foot shot near Patrington *c.* 10/1/59 had been ringed at Forfar, Angus, on October 15th, 1957, by the Wildfowl Trust. One shot near Rimswell (E. Riding), 23/12/58, had been ringed in Fife, Scotland, 19/10/52.

75. Grey Lag Goose (303).—Twenty-two flew north near Roseberry Topping on November 4th (K.B.). Small gaggles flying over Fulford, York, on the night of November 17th were thought to be grey lags from the resonant voices, and from the excitement caused among domestic geese on three farms (E.W.T.). Forty-seven flew west over Roundhay on December 21st and were followed to Moortown (R.V.J.).

76. White-fronted Goose (304).—Eight at Eccup on January 13th were thought to be of this species although not all had white ' fronts ' and the underbarring was not seen. Ten gave perfect views to us all on the Humber mud at Spurn

on October 4th; they had come from north-north-west. One also occurred at Spurn on November 29th (J.K.F., P.H.J.).

80. Brent Goose (312/13).—One occurred near Easington on February 6th (B.S.P.). The Derwent Valley floods had 23 on February 22nd and March 2nd; and 3 on the 22nd (A.F.G.W.). Six were at Patrington Haven on April 6th (L.S.), and seven on the 14th (S.M.). A Dark-breasted Brent was at Spurn on February 15th and on various dates to March 21st. Ten came to the estuary on April 10th. Twenty-two dark-breasted birds were on the Humberside on November 22nd, and on the 23rd were joined on the mud by a further 23 which left in *c.* 90 minutes.

Six Brent Geese over Glaisdale on February 10th appeared to alight on the moor (A.B.W.). Flocks of 10, 12, 6 and 35 crossed Teesbay towards Saltburn on March 31st, just before a build-up of Brents took place at Blakeney (Norfolk) (P.J.S.). Five off Teesmouth on March 30th were pale-breasted (B.J.C., J.H., K.S.).

81. Barnacle Goose (311).—Miss J. Fairhurst wrote to record one she saw with Canadas at Castle Howard Lake on October 22nd, 1957.

82. Canada Goose (314).—The Spurn log records two flying over Kilnsea on February 2nd. Nine were on the Humber near Melton on January 12th (B.S.P.). A pair reared nine young on Burton Agnes Lake (H.F.W.). Eight were introduced to Houghton Hall Lake this year (B.S.P., T.M.S.B.). Other occurrences in unusual areas were: nine at Sandbeck on March 29th (R.J.R.); one at Lockwood Beck Reservoir, January to March (M.A., D.G.B.); one, Scaling Dam, September 1st (D.G.B.); nine over Otley Chevin on April 22nd flying south-west, and a skein of *c.* 90 on December 21st (D.B.I.); four at Stocks Reservoir on April 20th (P.Q.); and seven at Ogden Reservoir, Halifax, on July 27th (C.W., I.M.). Thirty-eight flew over Fairburn west-south-west on September 28th (E.G.); nine were at Swillington Ing on May 29th (G.R.N.). Bred at Castle Howard Lake (E.W.T.).

Occurred normally in the usual areas, with much fluctuation in numbers seen, due to movement between water and water and between water and feeding grounds, and to changes of both, which is well evidenced in the Masham area where several waters are frequented.

Three birds that crashed into the roof of a keeper's house at Harewood in thick fog about November 27th had been ringed at Ripley on 10/7/56, 27/7/57, and 8/7/58 (A.F.G.W. and G.R.N.). One shot at Ripley in December, 1958, had been caught as adult on 21/6/57 by the Wildfowl Trust at Osmaston, Derbyshire and released later that month at Ravenstonedale, Westmorland, by the Kendal Wildfowler's Club (H. Boyd). At Ripley on July 8th, five birds were ringed in 1957 were recaught, and two of 1956, which were also caught in 1957 (A.F.G.W.).

84. Mute Swan (302).—The big herds showed maxima of 77 at Fairburn on July 18th (R.F.D., R.H.); 45 at Bottomboat on November 9th (E.G.); 43, Dearne Valley (Broomhill), December 1st (R.J.R.). Hornsea Mere had *c.* 110 on December 28th (B.S.P.); and 17 were at Welton Water on October 25th (R.G.) and November 8th (B.S.P.). Counts varied at all waters. Bred normally in many places.

The cob of a pair at Gouthwaite was seen to kill five Mallard ducklings, three of which were swallowed, which, however, must not be taken as habit without much more evidence (A.F.G.W.). The 'Handbook' says: 'young waterfowl killed at times . . . by drowning, but not eaten.'

85. Whooper Swan (300).—Last seen, two at Spurn on April 8th and one at Knaresborough S.F. on April 18th (J.R.M.). First of autumn: two in the Dearne Valley on October 18th (F.H., M.P.), and four at Glasshouses Dam. Occurred on the usual waters (24 at least) in rather small numbers. All the records in double figures referred to November and December. viz. 10 in the Dearne Valley on November 9th (J.B.H., W.T.) and 16 on December 1st, 14 at Fairburn on December 21st (R.H.) and 22nd (C.W.), and 14 at Hornsea Mere on December 28th (B.S.P.), and 26 on the Humber at Brough on December 27th (G.R.N., M.D.).

86. Bewick's Swan (301).—The only considerable party was counted on Blackmoorfoot Reservoir, 29 on March 12th (E.C.J.S., C.F.T.); a few were seen on 10 other waters, the latest being on April 4th at Scaling Dam (M.A.), seven at Flamborough on April 1st (A.J.Wms.), five in the Tees estuary on April 12th (P.J.S.), and one at Chalker Reservoir on April 16th (G.R.N.). One at Broomhead Reservoir on November 30th had a damaged wing and was still there on December 27th (R.G.H., D.R.W.). Eight at Eccup on December 26th (G.R.N., M.D.), and four at Hoyle Mill Dam, Hemsworth, on December 29th (M.N.R.), and eleven at Gouthwaite, on December 20th, were maxima in autumn.

91. Buzzard (269).—One pair reared two young in the north-west (Sedbergh S.S.), and other nests were robbed. Occurred in a number of places. A Common Buzzard seen in Farnley Park in April was thought to be responsible for the lodgement of the rear-end of a hare in a tree fork (A.G.). Also in Farnley Park on October 20th, Rooks and Daws caused one to rise in spirals to an estimated height of 6,000-7,000 feet; eventually it spiralled back to some young larches *c.* 50 yards from its original position (J.R.G.). A buzzard occurred in the Easington lagoon area on August 21st (L.S.), and one flew south at Spurn on November 9th (J.C., J.A.).

92. Rough-legged Buzzard (268).—Not definitely distinguished but one or two occurrences not improbable.

93. Sparrow-Hawk (277).—Very few reported. Felling of woods was given as a possible reason for scarcity in the Doncaster area (R.J.R.). Single birds at Spurn on several dates in September and November were probably passage migrants.

[**94. Goshawk** (275).—D. R. Seaward himself square-bracketed a large hawk at Redcar on May 8th because he could get no more than the silhouette, but he had no doubt himself.]

95. Kite (278).—On March 4th at Barnsley a hawk with long, narrow wings, ' blunt and raggy at tips ', and a narrow, forked tail glided over the Grammar School with occasional wing-beats (G. Aynsley). A sketch sent outlined Kite very well. A. Archer has questioned the boy without being able to shake him.

On March 6th D. Ward saw near Arthington ' what I believe to be a Kite '. It was being mobbed by rooks and flew close to the ground, had a long, forked tail, and was a reddish-brown in colour, with deeper red on back and rump. The wings were pale underneath; it appeared to be about two feet in length.

On April 18th at Ogden Reservoir near Halifax, Mr. C. Williamson was confident that a bird he saw at the same time as rooks and gulls, with ' cleft tail and long wings ' was of this species. None of these observers knew each other or that kites were seen farther south in England in early March and April.

89 or 97. Eagle.—On January 20th, 1958, one of the green keepers of the Pike Hills Golf Club (Mr. Mason) saw a very large bird rise from a tree in the adjacent Askham Bog. It flew in his direction making height slowly, and he clearly saw its yellow cere and great hooked beak, and large talons (described as nearly as large as human hands). It had a wing-spread of at least six foot and was of a dark brown colour with a flecking of lighter feathers, but showed no white (E.W.T.). I have included it here because *haliaetus* is more likely than *A. chrysaetos*.

99. Marsh Harrier (271).—Single males were recorded at Patrington Haven on April 7th (A.C.), at Hornsea Mere on April 23rd (A.W.), and May 27th (W.T.W.), and near Millington on May 10th (H.O.B.). A cream-crowned bird at Wintersett on May 11th had been about for a week (G.C.). One occurred at Fairburn on September 13th (A.F., E. & G.G.), and 21st (R.H., C.W., G.W.). ' Probables ' occurred near Methley on February 12th (R.F.D.), and at Kepwick on May 22nd (Miss Guthrie per J.P.U.).

100. Hen Harrier (273).—In view of the similarity between Hen and Montagu's Harriers, details of birds seen should be given, especially in spring and autumn when either could occur. A ' ring-tail ' at Kilnsea on Feburary 6th (B.S.P.) was unlikely to be wrongly diagnosed. A male flew over Harland Moor on February 22nd (T.E.D.). A female flew west as if from sea at Cloughton on March 9th (R.S.P.). M. Allison recorded a female near Guisborough on October 4th, and one on December 20th. A Harrier over Ilton Moor on May 13th was thought too big for a Montagu's (P.Y.).

102. Montagu's Harrier (272).—Probable Montagu's occurred: in south-central Yorkshire on June 15th (A.H.B.L.); on April 26th on the moor above Littondale (J.G.); and near Beighton on September 21st (R.G.H.). A female occurred at Stanghow on July 19th and 29th (M.A.). There were none reported about the old breeding areas. Not a harrier of any species was recorded at Spurn.

103. Osprey (284).—An Osprey flew over Gouthwaite Reservoir on May 11th (D.S., A.S., W.G., D. & M.B.T., D.G.L.). Clear views were got of one near Sedbergh on June 5th (S.S.S.). An Osprey frequented the Rye, near Helmsley, in autumn being seen on September 14th, 28th, and October 12th (C.D.M.).

An Osprey came down to the Pilot Cutter off Spurn, during a period of fog, about August 20th. Very exhausted, it was fed forcibly for a day or two then began to grip a fish in one foot, eating head and eyes first, guts, and then the rest, leaving the tail. A lot of preening and wing exercises was done on the 25th. When released

at 11-25 a.m. on the 26th, it circled once or twice, then flew towards Spurn Point (J. Raddings). On August 26th a keeper stated he had found the bird dead by an East Riding lake and that it had died two or three days previously; the body he had fed to his ferrets! The bird bore a ring of which the number had been taken (and which ring the keeper produced) and proved to have been ringed as a nestling on July 8th, 1958, on a small islet, *c.* 45 kilos west of Stockholm and 13 kilos east of Strängnäs (Södermanland), Sweden (Miss E. P. Leach).

[**104. Hobby** (261).—A small hawk over Ossett on May 23rd had pointed wings, a shortish tail, white belly and winnowing flight. The head markings were not seen clearly (A.F.).]

105. Peregrine Falcon (259).—Only one young bird known to be reared in Yorkshire in 1958. At a second eyrie it was believed the young were taken. Occurred at Bempton in April, at Spurn in early November, and a half-a-score other places on various dates, mainly in the North Riding.

107. Merlin (262).—Bred on a number of moors and occurred elsewhere out of the breeding season, at dates varying from January 11th by the Ure at Masham (E.E.J., R.F.D.), to the Humberside near Brough on February 28th (B.S.P.), Fairburn on April 4th (C.W.), Cherry Cob Sands on April 20th (D. Millin), Chevet Park on April 19th (A.F.), on various dates about Redcar from August 8th to December 28th (D.R. and P.S.), and on various dates at Spurn (January 25th, March 1st, and daily in parts of September and October, with one on December 22nd). Summer visitor, passage migrant, winter visitor, resident ?

110. Kestrel (263).—A pair were observed mating in flight at Knaresborough on January 22nd (I.D.). Seen to strike at passerines in larch trees, unsuccessfully, during snow in January-February (A.B.W.). Seen on most days at Spurn with noticeable increase in August-September, maxima 12 on September 8th, 10 on the 9th, 11 on the 24th, and fell to one or two again from mid-October. Three coasted north-west at Redcar on March 30th—a day of much passage by other species (D.R. and P.S.). Numerous between Atwick and Kilnsea on August 17th (L.S.), and on the Humberside in mid-August; seven were moving west at Cherry Cobb on August 16th (D.A.G.).

111. Red Grouse (514).—Generally had a poor breeding season due to persistent wet. Broods were few and small, and shooting was restricted to a day or two, or the intention abandoned, on most moors.

113. Black Grouse (513).—On March 30th, after a grey hen had been flushed in Bowland, a cock arose and flew high over a reservoir, then dived down into the water, where it swam for a short time, then succumbed (J.H.I.L.). Noted in several Pennine areas.

115. Red-legged Partridge (519).—One ringed, Spurn, 29/9/56, was shot *c.* 40 miles north-north-west at Thwing near Driffield on 30/12/58. Have the Spurn birds been driven away by excess of humans ? The species has certainly diminished, but a proved movement so far was hardly expected. Recorded on May 4th as far up Wharfedale as Middleton. Five were at Lingerfield on September 7th (I.D.).

116. Partridge (518).—Had a poor breeding season. A pair at Masham had a brood of only three small young on August 24th (R.C.).

117. Quail (520).—Noted in two places *c.* half a mile apart near Redcar on June 1st and June 3rd (D.R. and P.S.). A hen and seven newly-hatched chicks were on a road near Sutton-on-Derwent on June 29th (Batley N.S. per H.H.).

118. Pheasant (517)—One at Eccup on April 27th that dropped on the water after flying low over it, swam *c.* 30 yards to land safely. It jerked its head like a swimming moorhen, but with tail under water (G.R.N.).

120. Water-Rail (509).—Single birds were at Spurn on March 22nd-23rd and from April 9th to 19th (two on 11th and 15th). Appeared again, one on October 31st, November 8th, three on the 9th, one on 22nd and 23rd, and one on December 27th (three were ringed). Occurred in the Doncaster area, Womersley, Fairburn, Hornby Lakes, Rodley S.F., Copgrove, near Harewood, Swillington Ing, Sprotborough Flash, and west of Northallerton; breeding nowhere proved although suspected in several places.

[**121. Spotted Crake** (505).—A small rail glimpsed only briefly on May 4th may possibly have been this species.]

125. Corncrake (504).—Noted in twelve areas—two in the north-east, one in the East Riding, eight in or north of Wharfedale, and one Brotherton, August 30th (C.W.). Brood hatched in the Whitby area (A.B.W., C.E.A.B.).

126. Moorhen (510).—One ringed, Knaresborough S.F., 1/4/56; found dead at Otley, 9/4/58 (11 miles south-west) (J.R.M.). A first winter bird ringed at High Royd, 6/10/57; was near Harrogate, 23/5/58 (T.K.).

127. Coot (511).—Movements by this gregarious species are still not understood. Why do some waters have large numbers in some winters and very few in others ? Whence and whither do they come and go ?

At Sawley Lake, where only a pair or two breed, there were *c.* 340 on January 5th, *c.* 222 on February 2nd, *c.* 58 on February 20th, and 46 by April 14th—in the autumn there were never more than 10 (D.W., M.W.).

At Marfield Pond, two on February 22nd had become 32 *adults* by May 24th. One or two pairs had bred (E.E.J.).

At Bretton Park *c.* 50 adults in late December were ' not bred locally ' (J.C.S.E.).

At Hornby Lake numbers were down to 12 in May, but had been 40-50 in January to March and were up to 40 again on October 2nd (G.R.P.).

At Hornsea Mere, after numbering *c.* 850 in January, Coots were down at *c.* 50 on April 20th (F.E.K.) but back at *c.* 1,200 on November 22nd (R.H., A.V.).

At Fairburn Ing the breeding population is large and broods obscure the arrival of newcomers, but after a poor breeding season numbers returned to full winter level with *c.* 1,100 on December 13th (G. Carr), having increased from the *c.* 600 of October 11th, but were fewer on some days between, which presumes movement.

At Welton Water, *c.* 57 earlier in January became *c.* 25 from January 25th to the end of March, and two pairs remained to breed—eight on December 13th was the most of autumn (B.S.P.).

Circa 90 on the Lake at Sandbeck Park on November 2nd was a large number for that area (R.J.R.).

At Sprotborough Flash *c.* 60 on October 19th had become *c.* 150 on November 24th (J.B.H., W.T.).

131. Oystercatcher (452).—Bred as now normal in most of our river valleys including two pairs on the Rye (E.W.T., A.G., T.E.D.). In the Redcar-Saltburn area flocks spend the day scattered among the rocks below Huntcliff and flight back at dusk to the Tees estuary. There were few about Redcar from mid-October to the year end; nor many at Spurn.

133. Lapwing (449).—Breeding pairs were in good numbers but the wet affected the young and I found it unusual to find more than one chick, occasionally two. A nest near Ilkley held six eggs on May 4th (R.C.P.). A brood of very small chicks had recently hatched near Masham on July 5th (E.E.J.).

Much hard-weather movement was noticed in many places in the early months. *Circa* 1,000 built up at Knaresborough S.F. on February 23rd (J.R.M.), and up to *c.* 2,000 in early March on Welton Saltings (B.S.P.).

Steady movement, mainly eastward, took place all day near Doncaster on March 29th (R.J.R.). There was much passage mainly south-east (coastwise) at Redcar on March 30th—*c.* 650 in 50 minutes from 0630 to 0720 hours; 42 flew high and turned eastward out to sea (D.R. and P.S.). A large flock also built up on the coastal fields, some of which, on April 1st, mounted to join flocks crossing the coast eastward and high—between 1815 and 1835 hours 335 Lapwings so flew. At this time the little Lapwing movement visible at Spurn was southward down the coast.

The main autumnal passage and immigration took place from October 19th to November 3rd. On the 19th 364 flew north at South Gare in two hours (D.G.B.), and *c.* 1,800 passed north-west at Spurn (J.C.), with movement in the same direction higher up the Humber (D.A.G., R.G., H.O.B.), and up the coast at Hornsea (M.K.T.). Considerable westward passage was noted over Middlesbrough on October 19th, 20th and 28th and November 2nd (D.R. and P.S.). *Circa* 700 were counted on October 30th, from 0800-1200 hours, flying north-west at Redcar; most came off the sea (E.E.J.). The culmination at Spurn came on November 3rd with 1,967 counted between 0705-1055 hours, 1,300 of them in the first 50 minutes (J.C.). Thereafter coastal movement began to subside, and large flocks continued to be seen inland.

Pull ringed near Pannal, 12/5/57; St. Renan (Finistère), France, 14/1/58 (R.V.J.).

Pull ringed, Middlesmoor, 20/7/57; skeleton found near Darlington, 3/9/58 (M.R.S., A.F.G.W.).

Pull ringed near Summerbridge, 20/5/58; shot, Pereira do Campo, near Coimbra (Beira Litoral), Portugal, 29/11/58 (M.R.S., A.F.G.W.).

At Stanghow, several ringed in 1957, and one of 1956, returned in 1958 (M.A.).

134. Ringed Plover (435).—Bred at Spurn in rather reduced numbers, where numbers increased slightly in late May.

The largest flocks occurred at Cherry Cobb Sands with *c.* 500 on May 2nd, and *c.* 750 on May 16th (H.O.B.), and on the Humberside near Welton with 84 on May 24th (B.S.P.). Passage birds occurred inland: three, May 11th, at Wintersett (G.C.); one, May 19th, at Knaresborough S.F. (J.R.M.); up to ten in the Dearne Valley in May (J.C.H.L.); 78 at Fairburn on May 11th and similar large numbers up to the 20th (C.W.), and four at Bottomboat on May 27th (R.H.). Single birds occurred in August at Knaresborough S.F. (and three on the 9th) (J.R.M.); up to three in the Dearne Valley in August and September (J.B.H., J.C.H.L.), and three at Knotford Nook, August 11th (P.S.), and four at Healey S.F. on th3 16th (I.M.). One flew east near Harrogate on September 18th (J.R.M.). The spring movement is usually better evidenced inland than that of autumn. Redcar showed its maximum of *c.* 50 on October 7th (D.R. and P.S.).

135. Little Ringed Plover (438).—Of five chicks seen in one area only one was seen on the wing. Six pairs nested in two other areas.

139. Grey Plover (444).—One in breeding plumage occurred at Knaresborough S.F. from May 1st to 3rd (J.R.M.), and at Fairburn on November 6th (C.W.). Occurred at Spurn as usual with maxima of 57 on April 10th, and 94 on September 18th. *Circa* 50 were at South Gare on August 31st; and *c.* 75 on October 25th. Patrington Haven had *c.* 100 on April 14th (S.M.) and May 3rd (H.O.B.).

140. Golden Plover (440).—Recorded about Spurn, mainly north of Kilnsea, from January 1st to April 2nd, with maxima of *c.* 100, January 3rd and February 18th, and on many days after July 10th with maxima of *c.* 200 on September 10th and October 6th, and *c.* 540 on November 2nd. The coastal fields at Redcar had maxima of *c.* 200 in early March, and *c.* 300 on November 1st, and numbers remained large (D.R. and P.S.).

D. B. Iles watched fields frequented by this species to the west of Otley Chevin, finding that numbers varied, with increases in March and April. Out of *c.* 300 on April 15th at least 100 had black faces and the rest could have been of either race. Changes in numbers suggested to him that flocks changed as birds moved north. None were seen after May 1st. Other flocks in the early months included *c.* 500 at Bottomboat on January 12th (R.H.), *c.* 700 at Hangthwaite (Doncaster area), April 4th-7th—all had gone by April 22nd (R.J.R.), and smaller numbers at several places. J. R. Mather noted movement south-west at Knaresborough S.F. on six days in April. Autumn concentrations included *c.* 250 on the county boundary west of Sheffield on September 27th (E.C.S.); *c.* 300 near Scaling Dam on October 5th (D.G.B.); *c.* 400 at Hangthwaite on October 25th (R.J.R.). Maximum flocks occurred in December with *c.* 700 near Harrogate on the 21st (M.R.S.), and *c.* 750 on the fields near Stanley (Wakefield) on December 7th (G.C.).

142. Dotterel (446).—One was picked up on a road in Ossett on May 14th and taken to A. Frudd, who fed it on worms, snails, etc., on which it thrived; and took it to Scotland on June 14th where it flew strongly on the following morning.

143. Turnstone (402).—Maxima of spring at Spurn were recorded with *c.* 60 on April 19th and *c.* 40 on May 4th. Up to *c.* 80 occurred from August 18th to 22nd, and *c.* 95 on September 24th. Some were always recorded except from June 18th to July 12th, and I suspect a few non-breeders could have been found then. A male occurred at Denaby Ings on August 13th (J.B.H.).

145. Common Snipe (395).—Thirty-four on October 27th was a large number to be recorded at Spurn of this undoubtedly migrant species. *Circa* 127 were at Fairburn on March 1st (C.W.). Sixty-three were at Hangthwaite on April 4th (R.J.R.). Nine flushed near Masham on January 6th remained in a bunch and resettled together (E.E.J.). *Circa* 70 were flushed at Cooper Bridge S.F. on November 4th (R.Cr.); *c.* 100 at Adwick-le-Street S.F. on October 25th, *c.* 80 at Hexthorpe Flash on October 30th (R.J.R.).

147. Jack Snipe (398).—The latest occurred near Doncaster on April 28th (R.J.R.). Recorded at Spurn on August 24th and September 22nd, and at Knaresborough S.F. on October 5th (J.R.M.). Other records in many places were normal.

148. Woodcock (393).—Ringed by Wharfedale N.S. in Ilkley as pull, 24/5/58; Saint Evarzec (Finistère), France, 18/12/58. Bred in many areas as usual. On May 25th at Harewood ' roding ' began at 9-44 p.m. and ended at 3-35 p.m. Occurred at Spurn on April 5th, 6th, and 16th, probably migrants resting before flight abroad,

and from October 18th on a few days to December 20th—three flushed November 1st and December 14th.

150. Curlew (388).—A ' pull ' ringed near Fewston, 31/5/55; shot in the Exe estuary, Devon, 8/11/58 (M.R.S., A.F.G.W.).

' Pull ' ringed near Harrogate, 6/8/57; shot near Kilkeel, Co. Down, Ireland, 4/10/58 (M.R.S., A.F.G.W.). Maxima of Curlews wintering in Nidderdale were 118 on February 2nd, and *c.* 100 from early November to the year end (A.F.G.W.). A nest near Sedbergh held five eggs (Sedbergh S.S.). *Circa* 250 flew together by the river near Easington on July 17th, the largest number recorded in the Spurn log on any day; *c.* 150 were recorded for August 15th when other waders were also in good numbers. Knaresborough S.F. was apparently used for roosting purposes: 47 came in at dusk on May 27th, and up to *c.* 40 came in at dusk ' practically every evening during late summer and autumn ' (J.R.M.). A flock of *c.* 250/300 were on limestone between Kilnsey and Arncliffe on July 27th (Crosshills N.S. per E. Greenwood). A young bird on July 25th near Grewelthorpe must have been hatched that month (R.C.).

151. Whimbrel (389).—The ' May-bird ' lived up to an old name for it; occurring on the Humberside in the month, and being noted almost daily at Spurn from April 27th to May 31st (12 on May 17th). A bird at Bempton on June 22nd was early (H.O.B.). Occurred at Spurn from one on July 12th daily to September 27th with maxima of *c.* 30 on July 29th and *c.* 40 on August 8th and 17th. *Circa* 50 were at Patrington Haven on July 21st and 27th, and 12 came in from sea at Bempton on July 20th (H.O.B.). Inland occurrences in spring were all in May (Ilton Moor, Middlesmoor, near Doncaster, and Malham Tarn). Also occurred inland from July 7th (two, Eldwick (P.Q.)) at a few places and dates to October 12th (one at Fairburn (R.H.).).

154. Black-tailed Godwit (387).—Occurred at Swillington, 4 on May 6th (C.W.F.H.); and at Spurn on March 16th, May 6th and two on September 16th. Noted at Flamborough on May 11th (H.O.B.); at Cherry Cobb on May 15th (J.C.H.L.); at Patrington Haven on July 21st and 27th (H.O.B.), on August 16th (L.S.), and five on September 1st (H.O.B.), and at Cherry Cobb Sands on August 18th, 20th and 28th, and on September 2nd, 20th, 25th (H.O.B., D.A.G.). Occurred at Brotherton July 16th to 20th (C.W.).

155. Bar-tailed Godwit (386).—Two were at Eccup Reservoir on August 8th (G.R.N.). One found injured in Elland on November 1st at near midnight, was forcibly fed, recovered, and released at Elland S.F. (T.K., I.M.). The mud at Gouthwaite showed one on November 19th and 21st (D.G.L., J.R.M.).

Normal at Spurn in the early months with maxima of *c.* 135, January 11th; *c.* 100, February 22nd; *c.* 81, April 2nd; and nine, the last, on May 29th. The next occurred on July 18th, and daily from August 9th with maxima of 27 on the 15th, 33 on November 1st, 40 on November 22nd, 185 on November 29th. December was not watched fully but *c.* 260 was the estimate for the 27th. Teesmouth had its normal quota. *Circa* 100 were at Cherry Cobb Sands, May 16th, and *c.* 100, Patrington Haven, July 27th (H.O.B.).

156. Green Sandpiper (424).—Spring records were: one, Swillington, April 13th (G.R.E., V.S.C., I.M.); one, Wintersett, May 3rd (A.F.). One was at Knaresborough S.F. on March 11th and 21st (J.R.M.).

Two birds at Leven on January 26th, and one on March 23rd, and one on December 26th and 27th (J.T.B.), suggested wintering in two winters (H.O.B.). One at Ossett Spa S.F. on November 22nd (A.F.), and one, Fairburn, December 13th, were also late.

Occurred from July 1st—one near Driffield (D.C.U.) and one at Burstwick (A.C.) —to October 12th on many waters in smaller numbers than average. Shortage of mud margins may have been the reason. At Spurn from August 8th to September 10th, with a straggler on September 21st; maximum 11 on August 19th.

157. Wood Sandpiper (423).—Single birds on September 4th and 13th were all that were recorded at Spurn. Two at Hornsea Mere on August 20th (L.S.), and ones at Cherry Cobb on September 2nd, and at Beverley S.F. on September 7th (H.O.B.) completed the East Riding records. Also occurred: one near Ferrybridge on September 3rd and two on the 5th (C.W.), two at Scaling Dam on September 1st, and three on the 4th, 14th and 21st (D.G.B.), and one at Swillington Ing on September 3rd (G.R.N., M.D.).

159. Common Sandpiper (421).—One ringed at High Royd S.F. on 25/4/1950;

recovered near Barnsley, May 1st, 1958 (T.K.), eight years later. Early records were: three, Rodley S.F., March 28th and 29th (R.V.J.), one, Healey S.F., March 29th (A.F.); one, on the Ribble at Sawley on March 31st (K.G.S., T. G. Wood); but the main body came from April 20th to 28th. On several waters the last was seen in late September which was quite late, but one was at Gouthwaite on October 5th (A.F.G.W.) when one also occurred at Scaling Dam (D.G.B.). As many as *c.* 40 at Scaling Dam on September 4th, including a flock of 25 which ' flew round and round the reservoir ' (D.G.B.), would have been very unusual anywhere. Parties of six and ten were about Broomfleet Island on August 30th (H.O.B.). Occurred at Spurn from April 20th (one) on some days to May 28th, and from July 10th on most days to September 29th, maximum of ten on August 19th.

161. Redshank (428/30).—Always some at Spurn—spring maximum, *c.* 100 on April 20th—but very few in May-June. Numbers began to build up from July 11th, with eventual maxima of *c.* 250 on September 10th-11th; *c.* 600, September 21st; *c.* 400 on 24th and 25th, and up to *c.* 200 or more on some days in October and November, and fewer after. Cherry Cobb Sands showed large numbers in August, with up to *c.* 1,000 or more on the 20th and 22nd (D.A.G.). Breeding numbers were maintained at many places.

162. Spotted Redshank (431).—One at Patrington Haven on April 4th was the only spring record, but also occurred there on July 27th (H.O.B.), August 1st (B.S.P.), 16th (L.S.) and September 1st (H.O.B.) (the species can remain in one area for a long time). Was noted at Spurn on 13 days from August 13th to September 29th, and one on October 20th. Two were about Coatham Marsh on August 24th (D.R. and P.S.). Occurred inland: one at Bottomboat on August 11th (K.S.), one at Scaling Dam on September 14th (D.G.B.), and one at Blackstone Edge Reservoir, September 10th (C.R.S.), and one that left Lingerfield G.P. north-eastward on September 4th (I.D., A.F.G.W.).

165. Greenshank (432).—The only spring records were: one at Brotherton Ings on April 21st (E.C.S.), and one at Settle S.F. on May 7th (A.P., J.N.T.), and one at Spurn on May 6th. Recorded from over 30 places from July 14th (three at Bottomboat and six at Stanley S.F. (K.S.)) to October 26th (one at Eccup) (G.R.N.). Occurred at Spurn on many days from July 17th to October 20th. Maxima were: up to 12 at Barnby Dun on October 5th (T. Grant per R.J.R.); 15 at Mickletown Flash on August 20th (A.F.). Eight on August 19th was the most in a day at Spurn.

169. Knot (403).—Up to *c.* 5,000, but usually fewer, occurred at Spurn in January to March then fell away, with *c.* 100 on May 4th as the last flock; individuals appeared until May 27th, and from July 13th. As usual numbers did not begin occasionally to exceed 100 until October 4th, and it was late November before large numbers appeared—*c.* 1,500, October 28th; *c.* 3,000, December 30th. On May 3rd, *c.* 1,000 were at Patrington Haven (H.O.B.). *Circa* 4,000-5,000 was the estimate for Coatham Sands on December 25th (P.J.S.). A few occurred inland: one by the Humber near Melton, April 19th (B.S.P.); one at Knaresborough S.F. on May 11th (J.R.M.); one at Gouthwaite, November 20th to 22nd (D.G.L., J.R.M. and others); and one at Scaling Dam on September 4th and 2 on the 21st (D.G.B.).

170. Purple Sandpiper (415).—Occurred at Bridlington; *c.* 20 on February 21st (A.J.Wms.) and 12 were at Sewerby on April 11th. At Filey Brigg were four on September 19th (M.N.), and two at Hornsea on November 2nd. Occurred at South Gare on dates in January, and from September 28th (G.R.P.), and at Spurn on February 17th, August 15th to 17th, and on a few days in October.

171. Little Stint (407).—At Spurn, one, August 7th, and for a number of days; one, September 7th and 21st, and one on November 7th. Occurred at Flamborough, up to four, from September 3rd to 16th (A.J.Wms.), and at Cherry Cobb Sands up to five from September 1st to 11th (H.O.B.). A bird at Knaresborough S.F., September 3rd to 5th (J.R.M.), and one at Barnby Dun from October 3rd to 7th (T. Grant per R.J.R.), were the only Little Stints reported inland—in contrast with September of 1957.

173. Temminck's Stint (409).—One was at Brotherton on June 1st (C.W.); and one at Knaresborough S.F. on September 3rd (J.R.M.).

178. Dunlin. (404/5).—Occurs at Spurn always; maxima *c.* 1,000 April 1st to 5th; up to *c.* 1,350, September 26th to October 6th. Cherry Cobb Sands showed *c.* 1,000 on February 9th (R.H., A.V.), and *c.* 3,000 on May 2nd and 16th (H.O.B.), and Patrington Haven, *c.* 800 on March 11th, and *c.* 1,000, May 3rd (R.H., A.V., H.O.B.). The recently-flooded land near Bubwith (lower Derwent) showed *c.* 250 on April 23rd

(C.W.F.H.); which would seem from the number to be more likely to be passage migrants than incoming breeders—on April 20th birds appeared at Gouthwaite and Ardsley Reservoir. On May 10th and 11th up to 53 were at Brotherton Ing, and from May 20th with 17, numbers rose to 42 (R.H., C.W., M.R.S.). An odd one appeared on May 11th at Wintersett (G.C.). Occurred at Knaresborough S.F. on two dates in April and May. These May records probably were connected with the movements evidenced at Cherry Cobb. Only a few occurred inland in autumn, probably due to lack of mud; except at Knaresborough S.F. with Dunlins on 24 dates between July 24th and October 25th. Twelve flying west over Colsterdale Moor on August 12th (P.Y.) seem likely to have come from Teesmouth. *Circa* 1,000 were on Coatham Sands on December 25th (P.J.S.). Bred about the usual moors.

179. Curlew Sandpiper (406).—Occurrences were very few: one, Womersley, April 4th (L.C.B.); one, Patrington Haven, July 18th (B.S.P.); three, Spurn, August 13th, and one, August 15th; one, Mickletown Flash, August 20th (A.F.); one, Cherry Cobb, September 20th (D.A.G.).

181. Sanderling (416).—Two at Brotherton on May 20th (C.W.), and one at Knaresborough on May 11th (J.R.M.), and one at Knotford Nook on May 11th (P.S.). The species does not travel far up estuaries. Redcar Sands had up to *c.* 200 during January to March, as usual, with numbers reducing up to the end of May. From the first on July 5th, increased to *c.* 100 in the first half of October, then reduced to become unusually few to the year end (D.R. and P.S.).

At Spurn spring occurrences were irregular (*c.* 120, April 4th), to three on June 17th. After two on July 12th, was recorded on most days to the year end, maximum 90 on October 28th.

184. Ruff (417).—None in spring. One at Flamborough on July 28th was the first of autumn (A.J.Wms.). Ruffs were unusually scarce in August, the only records being one at Scaling Dam on the 10th (M.A.), two at Healey S.F. on August 11th and one on the 16th and 19th (A.F.), and one at Spurn (Beacon area) on the 22nd Curiously there were none recorded in August about the mid and upper Humber—the high water levels were ascribed as the cause of the paucity of the species by inland waters, but tidal waters would still show mud at low tides. Cherry Cobb Sands had a maximum of eight on September 16th (H.O.B.). During September was recorded at eleven other places in small numbers, Scaling Dam with *c.* 15 on September 14th (D.G.B.), showing the maximum.

185. Avocet (451).—Occurred at Spurn, on the Humberside of the ' canal zone ' bank, two on April 6th, three on the 7th, and one on the 8th and 9th (E.S.S., G.R.N., and others). One had been noted at Patrington Haven on the 4th (R.F.D.).

[**187. Grey Phalarope** (400).—A Phalarope off South Gare on December 13th was probably of this species (J. Nicholson).]

188. Red-necked Phalarope (401).—A Phalarope on Scaling Dam on September 14th allowed a close approach, and had a long fine bill (D.G.B., P.J.S., A.B., D.S.S.).

189. Stone Curlew (456).—D. Clark informed me that he saw one very plainly on Ilkley Moor on July 21st.

193. Arctic Skua (493).—First records were: one at Redcar on July 6th (D.R. and P.S.), one at Spurn on July 15th, one at Flamborough on July 23rd (A.J.Wms.). Seen frequently at all three places in August-September, with Spurn maximum in a day of *c.* 30 on August 25th. Late dates were: single birds at Spurn on September 24th and October 19th, two at Flamborough on September 26th (A.J.Wms.).

194. Great Skua (491).—At Spurn: one on August 23rd and two on the 25th and on September 14th; six on October 15th, and 12 on the 18th. On this last date many birds were passing northward including divers, gannets, auks and ducks. On the 17th five Great Skuas had flown north-west at Redcar. Other records were: one at Redcar on July 6th (D.R. and P.S.); one off Whitby on August 11th (G.C.); one at Flamborough on August 24th (H.O.B.); several off Filey on September 1st (E.G.); and one off South Gare on October 31st (E.E.J.).

195 and 196. Pomarine Skua and Long-tailed Skua.—None recorded.

198. Greater Black-backed Gull (486).—Ringed, Rott, Norway, as pull, 29/6/56; Wensley, North Riding, 16/12/56 (*British Birds*). Ringed, Roeburndale, as pull, 29/7/58; near Lancaster, 19/9/58 (D.B.I.). Fourteen at Gouthwaite on March 29th was the largest number there recorded (A.F.G.W.). *Circa* 20 pairs nested among the Roeburndale Lesser Black-backs (D.B.I.). Inland occurrences have been normal except at Eccup where there have been more than usual, with *c.* 40 on December 7th (R.V.J.) and *c.* 75 on December 14th (G.R.N.).

Never a day passes at Spurn without some recorded, beginning to build up from the few of spring in mid-July to maxima of *c.* 300 on August 19th; *c.* 750 on September 10th when a large increase was shown from the previous day. On September 24th, parties passed south during most of the day, ' even *c.* 3,000 may well be an under estimate '(J.C.). From October 19th numbers seldom slightly exceeded *c.* 100, and were usually fewer.

199. Lesser Black-backed Gull (484/5).—Pull ringed, Roeburndale, 22/7/56; Algeciras, Spain, 14/3/58. Pull ringed, Roeburndale, 22/7/56, near Chipiona, Cadiz, Spain, 20/1/58 (R.F.D., P.Q.). Pull ringed, Roeburndale, 27/7/58, near Oporto, Portugal, 7/11/58 (R.F.D., P.Q.). Pull ringed, Roeburndale, 5/7/58, Leizoes (Douro Litoral), Portugal, 30/9/58 (D.B.I.). D. B. Iles estimated the Roeburndale population at 6,000 pairs in June-July. Scarce at Spurn as usual with maximum of 16 on September 29th. A few occurred of the Scandinavian race on a few days from July 17th; 22 on October 2nd was quite unusual.

Leighton Reservoir as a roost for more than a few gulls is new. This species began to roost there in September, and continued with maximum of 883 on October 28th then began to decrease, with 145 there on December 21st (E.E.J.). At Denaby Ings *c.* 100 were roosting on November 24th with Herring Gulls; on December 14th only three were there but Herring Gulls had increased from *c.* 100 to *c.* 200 (J.B.H., W.T.). *Circa* 300 roosted at Eccup on August 30th (A.H.B.L.); none were there after December 15th (G.R.N.).

200. Herring Gull (482).—At least 100 pairs nested among the Lesser Black-backs at Roeburndale (D.B.I.). Pull ringed, Bass Rock on 8/7/55; Redcar, *c.* 9/6/57 (*British Birds*, 1958). At Knaresborough S.F. were 137 on January 5th and *c.* 200 on February 8th (J.R.M.). *Circa* 100 near Melton on February 22nd (B.S.P.), and *c.* 50 on March 9th, were unusual for the upper Humber. Maxima at Spurn were *c.* 120 on February 16th, *c.* 50 on May 18th, and June 8th, 68 on August 25th (sudden increase that day of other gulls), 60 on December 14th, and 71 on the 25th.

201. Common Gull (481).—*Circa* 2,000 were on Redcliff Sand on January 25th (B.S.P.). *Circa* 100 on August 10th were at the same place and *c.* 1,000 on October 12th (B.S.P.). In the Wold country between Market Weighton and Malton *c.* 800 were in one field on April 19th, and *c.* 1,000 nearby in one group; only *c.* 150 there on May 4th (J.L.). Ring No. 520027, put on a pull, 5/7/56 at Hornindal, Norway (61° 56′ N., 06° 30′ E.) was at Hull on 11/12/58 (B.S.P.). Maxima at Spurn were *c.* 700 on August 25th; *c.* 500, October 18th; and *c.* 200, November 29th.

202. Glaucous Gull (487).—Up to three sub-adults frequented Scarborough Harbour throughout January (A.J.W.), and two on February 2nd (J.R.M.), and one was there on December 27th (A.J.W., T.M.C.). Single birds were at Spurn on January 11th, September 25th, October 28th and November 24th. A sub-adult was about Bridlington Harbour on January 18th (S.M.), and was seen on several days up to February 21st (A.J.Wms.). A sub-adult was at Fraisthorpe on October 21st (Miss J.F.). Up to two occurred about the Tees estuary, Redcar, and Saltburn on various dates from February 23rd to May 27th. A gull, probably of this species, flew in to Leighton Reservoir on October 26th (E.E.J.).

203. Iceland Gull (488).—An immature Iceland was in Scarborough Harbour on January 5th and had a good deal of white in its plumage (R.M.G., M.F.M.M., A.J.W.). One or two immatures were about the Harbour on several days in January (A.J.W.) and one on February 2nd (J.R.M., C. Worrin). A gull, in flight on January 25th at Spurn, was recorded as Glaucous or Iceland. One on January 9th, described as ' pure white all over ' and comparable in size with the Common Gull with which it consorted, was set down as Iceland.

205. Mediterranean Black-headed Gull (479).—From a small fishing boat some five miles off Scarborough, on October 12th, 1958, J. R. Mather, R. C. Parkinson, A. F. G. Walker, K. Hardcastle, C. Winn and D. M. Burns took detailed description of a gull which they diagnosed as a second winter bird of this species. The first primary had a dark outer webb, the second was entirely white, there were some narrow black bars across the ends of the third and fourth primaries. The bill was yellow-based and tipped. The bird followed the boat for some time and excellent views were obtained.

207. Little Gull (477).—Occurred at Spurn: one on August 15th in almost full breeding plumage; a bird of the year on the 21st, two that passed south on the 28th, two juveniles on the 31st (J.C., H.O.B.), and two on September 6th (E.S.S., R.F.D.), and a juvenile on October 2nd (J.C., Miss J.D.).

Was recorded inland: at Blackmoorfoot Reservoir on April 2nd, 4th and 8th (R.Cr., E.C.J.S.), and two on October 4th (E.C.J.S., C.D.), and near Finningley on May 28th and 29th (A.E.P.). From June 17th an adult remained about a Yorkshire colony of Black-headed Gulls for about a fortnight; the ' kle-kle ' call was heard, and display seen involving a shallow dive with neck and head held up, which can seldom have been seen in this country. The bird remained until heavy rains caused many of the blackheads to desert. Two were at South Gare on August 31st (D.R. and P.S.), and one at East Cowick lake on the same day (C.W.).

208. Black-headed Gull (478).—

Pull ringed on Marsden Moor, 30/6/57; in Flintshire, 31/5/58 (T.K.).

Pull ringed on Fly Flatts Reservoir, 19/6/54; Weeton, Lancs., 10/11/58 (T.K.).

Pull ringed on Summer Lodge Tarn, 14/6/58; near Darlington, 20/7/58 (D.B.I.).

Pull ringed on Locker Tarn, 19/7/58; near Stokesley, 21/9/58 (D.B.I.).

Pull ringed on Brotherton, 22/6/55; near Gt. Harwood, Lancs., 27/12/58 (R.F.D.).

Pull ringed in Nidderdale, 6/7/58; Ormskirk, Lancs., 27/8/58 (M.R.S., A.F.G.W.).

Pull ringed in Nidderdale, 30/6/58; dead near Redcar, 3/11/58 (M.R.S., A.F.G.W.).

Pull ringed in Nidderdale, 6/7/58; dead near Kendal, 9/11/58 (M.R.S., A.F.G.W.).

Pull ringed on Heptonstall Moors, 28/6/53; Colne, Lancs., 7/1/58 (R.F.D.).

Pull ringed on Milicz, Poland (51° 32′ N., 17° 17′ E.), 14/6/57; recovered Brough (E. Riding), 26/4/58 (V. Waters, B.S.P.).

Avian tuberculosis was diagnosed as cause of death of one found dead at Malham Tarn on July 29th by Dr. A. R. Jennings of Cambridge. Tapeworms in this bird's intestines were identified by Dr. Vik of Norway as *Schistocephalus gasterostei* (P.F.H.). An almost albino at Fairburn on June 29th and other dates caused excitement until dark-tipped primaries were seen on one wing (R.F.D., R.C.). Numerous ' dead young were everywhere ' at one gullery. Some should have been examined for the cause (R.J.R.).

The following table speaks for itself:

Eccup Reservoir Gull Roost (maximum periods)
Estimated by R. V. Jackson

	Estimated Total	Black-headed Gull	Common Gull	Common or Herring Gull	Herring Gull	Lesser Black-backed or Herring Gull
1958						
Jan. 5th (dawn)	*c.* 12,000	99%	—	1%	—	—
,, 12th (,,)	*c.* 15,000	95%	—	2%	—	3%
,, 19th (,,)	*c.* 18,000	80%	5%	—	Nil.	15%
Oct. 27th (dusk)	*c.* 9,000	46%	2%	4%	Nil.	48%
Nov. 3rd (,,)	*c.* 10,000	48%	—	4%	—	48%
Dec. 1st (dawn)	*c.* 8,000	45%	10%	—	20%	25%

211. Kittiwake (489).—Pull ringed near St. Abb's Head, Berwickshire, 19/7/57; Scarborough, 22/8/57. Pull ringed, Farne Islands, 19/6/56; Bridlington Harbour, 6/6/57 (*British Birds*). Observed occasionally at Spurn with unusual numbers seen more frequently than usual on odd days in February, June, July, August, September, October, and *c.* 3,000 passing south on November 10th. Off Flamborough, many passed north from April 23rd-26th (A.J.Wms.), and many passed south on September 7th (H.O.B.). Off Redcar sample counts of Kittiwakes passing south-east on several mornings between August 11th and September 7th showed a rate of 3,500-4,000 in an hour. On November 10th there was a strong passage north-west at Redcar (D.R. and P.S.).

212. Black Tern (462).—The spring occurrences began on May 1st—one at Wintersett (J.C.), four at Blackmoorfoot (R.Cr.), two at Gouthwaite (D.G.L.), and one or two more occurred in early May and early June at Hornsea Mere and off

Hornsea, at Fairburn (two on June 5th), Gouthwaite, Kilnsea and Spurn (two on June 1st). One at Fairburn on July 5th (R.F.D.) was the next. At Spurn occurred from July 13th on a number of days with maxima of 45 passing south on August 14th and 35 on the 28th, and with odd birds on four days in September to the 25th, when two also occurred at Swillington Ing (G.R.N.). Other autumnal occurrences were: one, Blackmoorfoot, August 8th (O. White) and one, September 7th (A.V.S.); one, South Gare, August 24th (D.R. and P.S.); one, Cherry Cobb, August 28th (H.O.B.); seven, Wintersett, August 30th; one, Blackstone Edge, September 10th (C.R.S.).

217/218. Common and Arctic Terns (469/470).—Occurred in spring about seven inland waters from May 4th (Gouthwaite), two Commons and one Arctic (A.F.G.W.) to June 7th, maximum 11, Fairburn, June 1st (R.H.). In autumn noted about 17 waters from June 27th to October 11th (one, Fairburn, G.C.) and October 19th, one at Eccup (G.R.N.). Both species were included, and more were indeterminate. Maxima were five at Fairburn, June 29th (J.C.); ten near Knaresborough, July 5th (I.D.), and seven at Patrington Haven on August 1st (B.S.P.).

One noted at Spurn for April 20th is not mentioned in the log. The next was recorded on May 10th with the maximum for spring of *c.* 30 on May 11th. Redcar had two on May 7th (D.R. and P.S.). Autumn coastal maxima were *c.* 200 at Spurn on August 11th to 13th, and 28th, and about Scarborough Harbour in fog on September 2nd (E.G.). Late birds were: four at Redcar and seven at Spurn on October 6th; one at Aclam, Middlesbrough on the 13th, and a very belated 'commic' at Spurn on November 2nd.

219. Roseate Tern (468).—One in breeding plumage found dead on Fairburn slag on July 6th (C.W.).

222. Little Tern (471).—Appeared at Spurn, three on May 3rd, and regularly to August 26th (one). The next and last were 17 that crossed the Narrow Neck from the Humberside and called as they flew out to sea on September 23rd (G.R.B.). Numbers recorded never exceed *c.* 50 on July 12th. Eggs were laid but no young were seen. The yellow bill was seen of one at Wintersett on May 4th (G.C.). Two were at Redcar on May 6th (D.R. and P.S.). A tern small enough for this species was at Redmires Dam on July 22nd, but the bill colour was not seen (D.R.W.). Six were with *c.* 30 'commics' outside Scarborough Harbour on August 27th (F.H., M.P.).

223. Sandwich Tern (467).—One was found dead on the Spurn Humber shore on April 9th. Several at Redcar on April 19th were probably of this species (D.R.S.). Occurred at Spurn intermittently in spring, and regularly from July 11th to October 5th, with two on the 9th and five on the 15th. Maxima *c.* 400 on August 14th and 28th. Noted at Flamborough frequently—33 passed north on April 28th (A.J.Wms.). Three flew north off Scarborough on October 12th (J.R.M., R.C.P.). One called frequently over Harrogate as it flew south-east at 2240 hours on September 9th (M.R.S.). One flew up the valley at Fairburn, July 2nd, and four on July 5th (C.W.).

224. Razorbill (496).—Two small juveniles were attended by two adults at sea off Atwick on August 15th (L.S.). Oiled birds were on Redcar beach on March 1st and April 5th (D.R. and P.S.). Absence of records presumes that numbers on the cliffs were normal. Recorded at Spurn on many days, maximum 14 on September 28th. A raft of *c.* 300 Auks on the Humber estuary on June 13th were thought to contain more Razorbills than others (D.J.R.P.).

226. Little Auk (502).—Three at Spurn on October 18th, and one on November 22nd; one picked up alive in Hull on November 12th (R.S.P.C.A., B.S.P.) are all recorded.

227. Guillemot (498/9).—There was quite a large temporary return to ledges at Flamborough on January 2nd. On the 3rd *c.* 500 were on the sea off Bempton with a few on the ledges (A.J.Wms.). Oiled birds were on Redcar beach on March 1st and April 4th and 5th (D.R. and P.S.). A few recorded at Spurn on 19 days between May 17th and November 30th but many more out at sea would remain as 'Auk (sp.)' (e.g. 121 on October 18th).

229. Black Guillemot (501).—An adult in winter plumage stayed in Scarborough Harbour from January 12th to 15th (A.J.W.).

230. Puffin (503).—In the morning of October 18th, a considerable off-shore movement northward at Spurn included 47 Puffins (J.C.), and a few were recorded on other days. One flew over Elland G.P. on October 19th (T.K.). A young bird was found walking on the railway track near Colne on August 1st; it died, probably from insufficient proper food (A.P.). A few were found oiled near Redcar—one, April 4th;

three, May 23rd; ten, July 5th; one, December 13th (D.R. and P.S.). A bird picked up alive near Beningborough on November 12th and reported as Little Auk; from the description was almost certainly a Puffin (E.W.T.).

232. Stock-Dove (381).—Five parties flying down the Spurn peninsula in the morning of January 25th totalled 261 birds (C.W.); recorded there, a few, on several other days.

234. Wood-Pigeon (380).—Pull, ringed, Tockwith, 3/8/57; recovered, Stillington, 14/3/58, 11 miles north-east (J.R.M.). *Circa* 30 in a field near Guiseley on March 15th increased to *c.* 130 by April 27th; then vanished (D.B.I.). A roost in firs in Farnley Park contained *c.* 70 in April and early May, then declined (D.B.I.). *Circa* 600 were in Farnley Park on October 20th (J.R.G.). Other roosts were reported, smaller than the last. D. Buffey reported *c.* 300 passing north at Spurn on January 7th.

235. Turtle Dove (383).—T. W. A. Wood again reported abnormally early arrival —April 11th at Sleights. Elsewhere, May 3rd was the earliest date: near Doncaster, near Wintersett, Harewood, and Eccup. The latest were on September 13th, at Eccup, and five at Swillington Ing; at which latter place, gathering migrants and local breeders both occur, with 35 there on August 29th (R.V.J.).

At least 35 occurred in a field in the Hatfield Chase area on June 7th (A.E.P.)—the species has long been plentiful there. Occurred at Spurn mainly in May to June, with maximum of 11 on June 8th passing southward over the Humber (G.R.B., M.W.). A few coasted north-west at Redcar in May (D.R. and P.S.).

237. Cuckoo (240).—First recorded on April 16th at Rodley S.F. (R.V.J.) which was ten days before most of us saw or heard one. Eight, and five, were noted together near Sprotborough on May 31st (J.B.H.). In the Doncaster area alone was it described as ' more numerous than for the past two years ' (R.J.R.). ' Never known fewer ' exemplified the comments from most observers. At Spurn, after two on May 3rd, Cuckoos occurred throughout May and to June 21st with maximum of six on May 13th and June 10th. Birds began to trickle back from July 12th to September 22nd—five on July 29th. At Redcar the species was coasting north-west on May 29th (D.R. and P.S.). A young bird at Haxby on September 14th (F.J.) was the last inland.

241. Barn Owl (254).—Reported a little more frequently than usual. Occurred at Spurn behind the cottage on April 15th and in August; and one was found newly dead on September 30th in the Beacon area.

246. Little Owl (249).—A nestling Jackdaw ringed in Haverah Park on June 7th was in a Little Owl's nest, 70 yards away, a week later (I.D.). A headless Lamprey was inside a nesting-box at Knaresborough used by this species for roosting, on April 20th (J.R.M.). Common this year around Otley Chevin (D.B.I.) and reported from a number of areas. Recorded at Spurn on nine days.

247. Tawny Owl (253).—Apparently a last year's bird, one was caught in Spurn Warren trap on May 7th (R.C., C.C.).

248. Long-eared Owl (250).—On November 20th, a bird reported as Great Horned Owl was perched at daybreak on a bollard of the foredeck, of a vessel off Flamborough—it was more likely to be this species than *Bubo*. Breeding was recorded in the Sheffield area (R.G.H.). Eleven pellets collected in Haw Park on February 15th contained remains of 34 Short-tailed Field Voles, four Long-tailed Field Mice, and one Common Shrew, and of four small birds (J.C.S.E.). Occurred at Spurn on four days in April.

249. Short-eared Owl (251).—Ringed in the Bowland area, 2/6/57; recovered near Ramsgate, Kent, 8/2/58 (R.F.D.). Bred in at least four inland places, and seen in a number of others. Recorded at Spurn in every month but January—three on April 5th and September 16th, and five on October 18th, and on 12 occasions on the Humberside, and at Bubwith. A very tired bird was on Boulby Cliff top on August 4th (D.R. and P.S.). One flew west over Fairburn on September 17th (C.W.) —it could have come via Spurn.

252. Nightjar (227).—Occurred in at least two East Riding areas, in at least four places in the north-east, and in two places in the north-west, and in several in the West Riding from Wharfedale to the Sheffield area. Breeding was proved in several places. Was not recorded at Spurn, but one came on to a Humber pilot-cutter on September 14th (J. Raddings).

255. Swift (225).—Recorded at seven places in April from the 24th at Ilkley (A.C.M.D.), and at Knaresborough S.F. (J.R.M.), and 25th at Harrogate S.F.

(A.F.G.W.), Fairburn (C.W.), and Crosshills (E. Greenwood). Was not seen at Spurn until May 3rd, with maximum in May of *c.* 60 on the 24th. The species also coasted north-west at Redcar throughout the month (D.R. and P.S.). On June 7th, *c.* 800 Swifts were passing south all day at Spurn, and after a period in which only a few passed, large numbers again passed south on June 20th. More moderate numbers passed on July 12th and 13th, 26th to 28th and August 2nd, and large numbers did not recur until *c.* 181 on September 7th, and *c.* 500 on September 8th, after which a trickle lasted until the 26th, with a few odd birds until the last; two on October 7th, and one on the 17th. Swifts also occurred in October at Knaresborough, one on the 2nd (J.R.M.); at Hemsworth, one on the 3rd (M.N.R.); four at Redcar (E.E.J.); and eight near Whitby on the 6th (A.B.W.); at Redcar on five days in October to the 10th (D.R.S.); one at Flamborough on the 11th (A.J.Wms.); and one at Walkington (T. M. S. Birch); and one near Whitby on the 14th (A.B.W.)—an unusual number of very late Swifts.

To mention all the concentrations inland is impossible. Numbers built up at Harrogate S.F. (N.) to 300-400 on May 17th, probably cold weather concentration (M.R.S., A.F.G.W.). A large movement occurred on August 2nd at Healey on Calder, with *c.* 1,500 counted between 2-0 p.m. and 2-45 p.m. (Hirundines were in smaller numbers) (A.F.). *Circa* 300 flew south at Wadsley Bridge, near Sheffield, in half-an-hour on August 13th (R.G.H.). Numbers breeding appeared to be reduced in some areas. Young were still being visited at the nest near Lofthouse on August 30th (D.S.).

258. Kingfisher (234).—A hole near Harewood from which a brood had already flown contained a second brood on June 29th (E.C.S.). Bred in and reported from several areas. Status probably stationary.

261. Hoopoe (232).—Reported in May: on the lawn at Snape Castle on the 2nd (B. C. Smartt); at Neasham Hall, near Darlington on the 3rd (*Darlington and Stockton Times*); in a garden in Ryedale about May 18th (F. Nicholson); one reported near Skeffling by Mr. Flintham on the 25th; and watched on a lawn at Menston on August 16th (C.G.B., O.M.P., E.A.W.G., H.J.W.).

262. Green Woodpecker (235).—Generally rather less noticeable than usual.

263. Great-Spotted Woodpecker (236/7).—One flew south along the dunes near South Gare on October 31st.

264. Lesser-Spotted Woodpecker (238).—Recorded from near to: Doncaster, Sheffield, Wakefield, Apperley Bridge, Farnley Park, Harewood, Ripley, Sutton-in-Craven, and Masham.

265. Wryneck (239).—Occurred at Spurn from September 1st to 9th, with maxima of six on the 4th and eight on the 5th and 6th, and a single bird from the 16th to 20th. On September 5th one picked up alive at Cayton Bay died overnight at the Wood End Museum (A.J.W., T.M.C.). One was seen on the cliff top at Filey on September 4th (A.J.W.), and one in adjacent fields on the same day (R.S.P.). Up to three Wrynecks occurred at Flamborough from September 5th to 8th (I.D., G.H., H.O.B., A.J.Wms.). One was dead on the road at Skeffling on September 7th (G.R.B.). All occurrences were part of the movement described by E. S. Skinner whose table deals only with birds ringed. Feathers from a bird killed by a Merlin on Ovenden Moor on October 26th were identified as of Wryneck by Mr. M. Johnson of the Halifax Museum (I.M.).

269. Short-toed Lark (66).—At Spurn on November 30th, on the sea-shore east of Warren Cottage, a fairly tame bird gave good views to J. Cudworth, J. K. Fenton, R. C. Parkinson and N. H. Ward. Distinctly smaller than Skylark, it appeared as a small, greyish lark, with uniform, greyish-white belly and lower breast, and with dark, unstreaked upper breast. The grey-brown upper parts were streaked dark-brown on back and mantle; the tail shortish with outside feathers white and central feathers darker than rump. Eventually the bird was caught in E. S. Skinner's mist-net, duly measured and examined in the hand; with full details taken, and admirably entered in the log by P. Hope Jones. The species, *Calandrella brachydactyla* (Leisler), was a new bird for Yorkshire.

271. Woodlark (69).—S. Martin recorded one at Spurn on April 15th; he is familiar with the species, and saw the necessary details. Out of two broods in South Yorkshire only one bird was known definitely to fly; wet weather or predators.

272. Skylark (70).—Movement caused by severe weather was noticeable in January—north-west at Masham from January 6th to 14th (E.E.J.); westward at Eccup and Harewood on January 7th and 8th (G.R.N.); over Ilton Moor westward

on January 22nd (P.Y.), over Sheffield westward on January 21st to 23rd (R.G.H.), and was noted at Redcar from February 12th to 16th (D.R. and P.S.), and some at Spurn on the 18th. Flocks in fields were noted in some places as usual.

The peak of the autumn passage came at Spurn from October 18th to 24th, which was also the time of the peak passage at Redcar and Boulby, between west and north-west (D.R. and P.S.), and in regions of the upper Humber north-westward (D.A.G., R.G., H.O.B.), and of large passage south-westward over the Wakefield area (E.G.). The October movement over Doncaster, so noticeable in some recent years, was negligible (R.J.R.). On October 23rd, the day of maximum recorded migration by Skylarks and Chaffinches, R. F. Dickens summarised the day's counts in the Spurn log in tabular form, which is quoted *ante*—after crossing the coast Skylarks followed the curving line westward of the north bank of the Humber.

273. Shorelark (72).—Occurred at Spurn; one on October 17th, four on November 8th, and two on the 9th, with a possible Shorelark at Gristhorpe Bay on the 9th (Mrs. Waite).

274 Swallow (220).—The first reached Ben Rhydding at 4-30 p.m. on March 28th (E.S.S.). On the 30th birds occurred at Halifax (E.C.J.S.), Bewerley (I. and S.D., A.F.G.W.), Fairburn (C.W.), near Filey (D. N. Whiteley), and one at Marske (Redcar) where the next was seen on May 2nd. After other odd occurrences on March 31st to mid-April, the main bodies arrived in most places about April 26th. Not seen at Spurn until April 20th; the main passage began on April 26th to continue on most days in May until mid-June, with maxima on May 6th (*c.* 400), 8th, and 11th (also a peak period at Redcar).

Pull, ringed, Markington, near Ripley, 20/7/56; found dead in a pigeon loft, Monetay-sur-Loire (Allier), France (46° 26′ N., 3° 50′ E.), on 13/4/58 (M.R.S., A.F.G.W.). A pull ringed, Knaresborough, 24/7/55; retrapped, K.S.F., 9/5/58 (J.R.M.). An adult ringed Ripley, 30/6/57; retrapped Harrogate S.F. (N.), 10/5/58 (M.R.S., A.F.G.W.). One caught roosting in a Spurn ' pillbox ' on 18/5/56; was roosting there again, 3/5/58.

Large numbers roosted at Fairburn in reed-beds on some days in September (*c.* 5,000 on the 4th) and early October (*c.* 3,000 on the 4th) (C.W.). A Heron flying up from the marsh at Newton Ing on September 16th was followed by a cloud of Swallows that appeared almost like midges (R.F.D.).

The autumn passage at Spurn began in late July: *c.* 270 on the 27th reached its maximum, August 13th to 16th (3,542 counted on the 13th including *c.* 1,200 in one half-hour), and continued into September (*c.* 200 September 26th), and October (52, October 20th) with a few afterwards on some days to November 3rd. At Redcar on the peak day, September 7th, Swallows were passing both north-west and south-east (D.R. and P.S.). The last three records came from Lindley on November 9th (P.S.); two at Scalby on November 13th (R.S.P.), and a juvenile at Scarborough on November 28th (A.J.W.).

276. House-Martin (222).—First seen at Crosshills on April 22nd (E. Greenwood), and on the 24th at Harrogate and Knaresborough S.F.s. On the 25th birds were back at nesting-sites at Bewerley (A.S.). Three were at Spurn on the 26th where the spring maximum came on June 8th (*c.* 180), the only day in either spring or autumn with more House-Martins than Swallows. At Redcar, spring passage was more marked than usual, or than autumn, and was not noted until May 6th, with peaks on the 7th and 22nd (D.R. and P.S.). Young were being fed in the nest at Barnoldswick on October 8th (J.N.T.). The autumn passage at Spurn was most noticeable from September 5th to 9th (*c.* 215 on the 5th), September 22nd to 25th, and October 5th-6th and 13th; at Redcar on September 7th and October 5th (D.R. and P.S.). *Circa* 80 flew down the Ure at Masham on October 30th (E.E.J.). Late birds included one at Spurn on November 9th and single birds over the Nidd near Pateley Bridge on November 5th, 11th, and 14th (D.G.L.).

277. Sand-Martin (223).—The species well illustrates the results of a late season due to adverse weather. There were no really early arrivals. On March 28th birds appeared at Ben Rhydding (E.S.S., R.C.P.), and on the 29th at Thrybergh Reservoir (R.J.R.), Bolton Abbey (A.C.M.D.), and Horbury Bridge (A.F.). Noted on the 30th at many places, including three coasting north-west at Marske-on-Sea (D.R. and P.S.), and Fairburn where one appeared in early morning and *c.* 300 in the afternoon (C.W.); but many places did not have one until into April. *Circa* 500 were over Wintersett Reservoir on May 11th (G.C.), and an influx was noted to Hornsea Mere on the 23rd (A.J.W.). *Circa* 200 were over Castle Howard Lake on April 22nd (C.W.F.H.).

Ringing by J. R. Mather has brought some results:

Ringed as adult, Knaresborough S.F., 6/7/58; breeding at Otley, 9/8/58.

Ringed as juvenile at Farnham, 22/7/55; retrapped, Knaresborough S.F., 2/5/58.

Ringed as juvenile, Lingerfield, 28/8/55; Little Ribston, 15/7/56; and Knaresborough S.F., 2/5/58.

Ringed as adult at Copgrove, 25/7/55; Harrogate S.F. (N.), 9/5/58.

Ringed as adult at Copgrove, 8/8/55; Knaresborough S.F., 17/5/58.

Ringed as juvenile at Copgrove, 24/8/55; Farnham, 12/7/58.

Ringed as adult near Ilkley by Wharfedale N.S., 30/7/57; in hole (no eggs) at Masham, 25/5/58 (E.E.J.).

Ringed as adult by Wharfedale N.S., 21/9/51; dead at breeding colony, Skewsby, 20/8/58.

High river levels affected many birds; on July 3rd scores of Sand-Martins' eggs floated on the swollen river at Fryston (R.F.D.).

Passage at Spurn in spring was not large and began on May 3rd although a bird had occurred on April 12th. Maxima were: in spring, *c.* 40, on May 18th, and in autumn, *c.* 100 on July 28th and 30th, with *c.* 500 on the 31st—almost all between 8-15 and 9-30 a.m. At Redcar autumnal passage was thinner than in spring (D.R. and P.S.). Concentrations at Fairburn included *c.* 3,000 on July 17th, *c.* 1,000 on August 26th, *c.* 1,500 on August 30th, and *c.* 4,000 on September 1st, with *c.* 200 as late as October 4th, and 38 on October 14th, and the last two on the 19th. (C.W. and others).

279. Raven (1).—One nest in the hills was robbed; another pair reared young. Two Ravens mobbed two Buzzards in Nidderdale on December 3rd (D.S.). Fairburn is hardly typical Raven country but the species was reported on February 22nd (A. Chapman) and on November 15th (fog on the 14th) (G.C.). Noted in the Pennines fairly frequently.

280. Carrion Crow (3).—One caught and flew away with a full-grown young Starling on June 6th (C.W.F.H.). Occurred at Spurn in more than local numbers (up to 20) from April 8th to 18th, with 88 on the 19th and 56 on the 20th—the watch that produced 88 Carrion Crows passing southward (and numbers of other species) was carried out from 0430 hours to 0730 hours (C.E.A., C.W.). In autumn, maxima were 18 on October 5th and 14 on November 4th. Carrion Crows were numerous in upper Nidderdale in late August when *Myxomatosis* was rife among rabbits, and in the afternoon on August 31st *c.* 100 flew down the valley at Gouthwaite (I.D., A.F.G.W., D.S.). Twenty-five on Ilton Moor on October 22nd had gone next day (P.Y.). *Circa* 80 roosted at Golden Acre on November 1st (G.R.N.), and on the Melton foreshore were 24 on November 1st and *c.* 30 on the 15th (B.S.P.). The last three records probably refer to immigrants.

281. Hooded Crow (2).—One was near Brough on January 12th (B.S.P.), at Redcar on March 28th (D.R. and P.S.), and Cowden on the 29th (W.A.B.), and at a Scarborough rubbish-tip on April 4th (A.J.W.). Occurred at Spurn: one on February 22nd, and up to five on some days, April 1st to 26th, with one on May 17th. In the autumn up to two recorded on only six days from the first on October 18th. One near Naburn on November 28th (E.W.T.), and one at Winestead on December 28th (A.C.), were the only inland autumnal records. The species has decreased considerably in recent years.

292. Rook (4).—*Circa* 6,000 near Bramhope on October 22nd were about a probable roost at 4-30 p.m. (J.R.G.). Nest building began at the Apperley Bridge Rookery on January 22nd, but the birds first stayed to roost there on March 13th, the same date as in 1957 (E.E.J.). There was a little passage at Spurn, April 9th to 12th (15 on the 10th)—52 recorded with no details on February 16th were probably changing terrain as the result of weather. None was recorded from May 11th to July 1st. Immigration was evidenced by passage south of 34 on November 3rd and eight on November 6th.

283. Jackdaw (5).—A few occurred at Spurn, usually in company with other crows, with maxima of 37 on April 19th and 16 on November 3rd. One near Knaresborough on March 16th had underparts almost wholly white (R.G.H.), and two at Flamborough on May 4th had large white patches in the wings (R.G.H.). I saw one on June 10th getting hair from a cow's back straight to the nest lining (R.C.).

284. Magpie (7).—Two flew in off the sea at South Gare on February 1st to alight on buildings (D.R. and P.S.). A fox-covert near Haxby forms a roost for *c.* 40 (F.J.).

286. Jay (10/11).—One in the Beacon area north of Kilnsea on May 25th. One in the Spurn Roll-call on June 1st was not mentioned in the log.

288. Great-Tit (98).—Ringed, Spurn, 19/10/57; found decomposed at Bridlington, 4/3/58. Ringed, High Royd, 19/12/53; retrapped nearby, 16/2/58 (T.K.). Occurred at Spurn on a few days from January 6th and regularly April 5th to 19th; and no more to one, September 27th and one, October 18th; four on April 8th may have been returning immigrants, see under Blue-Tit. Very numerous at Yateholme (Huddersfield area) on October 12th, with Blue-Tits (T.D.B.).

289. Blue-Tit (100).—Ringed, Keyingham, 17/3/53; East side of Hull, mid-October, 1953 (W.A.B.).

Ringed, Spurn, 6/4/58; Tourcoing (Nord, France, 50° 44′ N., 3° 10′ E.), 12/4/58.

Ringed, Masham, 19/3/52; retrapped, 17/7/52, 24/8/56, 2/9/58, when in fine male plumage (R.C.).

Ringed, Apperley Bridge, 20/11/49 (R.F.D.); retrapped, 23/2/58 (E.E.J.).

Ringed, Doncaster, 1/3/58; recaught at Oaka Moor, Cheadle, Cheshire, 47 miles south-west (A.E.P.).

Ringed as juvenile, Apperley Bridge, 19/6/51 (Iles and Davies), same place, 26/2/58 (E.E.J.).

Ringed, Masham, 10/9/58: killed by cat near Ripley (11 miles south) *c.* 16/12/58 (R.C.).

Ringed, Middlesbrough, first winter, 9/2/58 by I. Stewart; caught in nesting box containing completed nest at Ripley, 18/5/58 (39 miles south-south-west) (M.R.S.).

Occurred at Spurn in the early months fairly frequently (12 on January 17th), and daily from April 4th to 20th, and on six days after to June 28th, and a few only on some days from August 10th to the year end, never more than four in the autumn. The French recovery is most interesting, having been ringed on a day when 10 occurred, in the short period of April when 11 and 12 were also noted, and when other Blue-Tits of the 1957 autumn 'invasion' were probably on their way back to whence they came. On March 1st B. S. Pashby had noted *c.* 50 in reed-beds by Welton Water near the upper Humber. On January 13th, *c.* 25 were in a reed-bed at Swillington Ing, and on February 23rd *c.* 20 were on the Aire bank at Fairburn (A.H.B.L.). In the 1957-58 winter R. S. Pollard ringed more than double his usual number at Cloughton, and Ian Stewart ringed 122 at Middlesbrough from January 6th to March 23rd. All these facts seem to be connected with the 1957 autumn invasion. In early October, 1958, small groups at Redcar were very restless and six left north-west on the 12th—one was at South Gare on October 5th (D.R. and P.S.).

290. Coal-Tit (102).—Reverted to its usual rareness at Spurn; two, June 17th, and one, September 6th and 15th.

293. Willow-Tit (108).—Recorded from Fairburn (R.H.) where breeds; Hornby Park, two pairs (G.R.P.); Ossett Spa S.F., where bred in alder stump (E.G.); Bramhope and Guiseley areas (D.B.I.); and two near Lockwood Beck Reservoir on November 16th (A.J.V.).

294. Long-tailed Tit (110/11).—One was recorded at Spurn on May 3rd. One at Redcar, on the T.V. aerial of the house next to the dunes on April 7th, was a reminder of last autumn (D.R. and P.S.). *Circa* 30 occurred at Gouthwaite on October 5th (A.F.G.W.).

296. Nuthatch (96).—Sedbergh, Grassington, Woodhall (Wensleydale) and Glasshouses near Pateley Bridge, are areas in the heart of the Dales country where occurrences have been recorded.

299. Wren (213).—Occurred at Spurn slightly more frequently from April 6th to 27th, than in March or after April. A sudden influx on October 18th (15) was followed by a period when Wrens were seen (up to 10) every day—figures dropped after October 26th to the normal two or three of winter. We are still without the first ringed bird recovered away from Spurn. A pair nest-building on November 7th (G.R.P.) were probably providing a winter roost for themselves.

300. Dipper (218).—A census covering a two-and-a-half mile radius from Sedbergh produces 20 nests (15 built over water); 117 eggs from which 79 young flew; with an average first clutch of 4.74 and second clutch of 4.04 (Sedbergh S.S.).

301. Mistle-Thrush (174).—Recorded at Spurn on 13 days during the year including the unusual number of seven on February 15th which moved northward.

One ringed, Kentmere, Westmorland, by J. W. Allen, 30/4/57; trapped, Apperley Bridge, 9/2/58 (60 miles south-east) (E.E.J.).

One was at South Gare on March 30th, when some other Turdidae were held up (M.R.S.). Three parties (40, 82, 35) went down the valley at Denholme on August 5th, when many Warblers and Flycatchers, etc., also passed (A.F.). On October 1st, 27 flew up the Aire Valley near Fairburn (C.W.). A flock of *c.* 30 on Eccup Moor on September 1st were presumably after berries (G.R.N.). At Redcar one coasted north-west on October 5th, three on November 1st, and one on December 7th coasted south-east (D.R. and P.S.).

302. Fieldfare (173).—Flocks built up in fields about Otley Chevin and reached *c.* 500 on April 17th; by the 25th only one remained—until the 27th (D.B.I.). Small parties flew north and north-east at Ilton on April 17th at first light (P.Y.); the last of large numbers that had passed Eccup and Golden Acre in March to April occurred on April 18th (G.R.N.). The last were single birds at Flamborough on May 12th (A.J.Wms.), and on June 5th at Malham Tarn (P.F.H.).

Early arrivals were: one at Spurn on September 15th-16th, 18 at Gouthwaite on October 5th (I.D., D.S., A.F.G.W.), and *c.* 30 on Ilton Moor on the 6th (and no more there until October 28th (P.Y.). The next Fieldfares at Spurn came on October 17th, and passage followed daily with maximum of *c.* 250 on November 1st, and continued into December. Some came off the sea, and others came down the coast on December 26th to the number of *c.* 200. At Redcar immigration was observed from October 27th to 30th (D.R. and P.S.). Many came to Chevet from north-east On October 26th (E.G.). *Circa* 700 Fieldfares and Redwings flew west over Gouthwaite on November 1st (A.S., M.R.S., A.F.G.W.). The first party at Malham Tarn came on November 2nd (P.F.H.). *Circa* 600 flew west at Bishop Monkton in ten minutes from 3-30 p.m. on December 7th (D.M.B.), and on December 14th *c.* 500 flew west from Leighton in late afternoon. I think the species has been more in evidence than usual.

303. Song-Thrush (175/7).—Ringed, Guiseley, 1/6/53; dead, Menston, 27/4/58 (D.B.I.).

Ringed by Wharfedale N.S., 7/8/57; Bramley Cross, near Bolton, 7/4/58.

Ringed by Wharfedale N.S., 12/3/55; Cregagh, Belfast, 12/2/58.

Ringed, Isle of May, 10/3/56; Sandholme, near Howden, Yorks, 8/9/57 (*British Birds*).

Ringed, Bardsey Island, 15/10/56 (first winter); near Ilkley, 23/5/57 (*British Birds*).

Pull ringed, Knaresborough S.F., 14/8/58; dead, Whixley, 13/12/58 (J.R.M.).

Obvious immigrants were about Redcar dunes and bushes from March 28th to 30th, and several were at South Gare on the 31st (D.R. and P.S.); *c.* 40 were very tame at Welton Saltings on March 9th (B.S.P.), and at Spurn during the first half of April. Autumn passage by this species at Spurn was regular but small; at Redcar a small flock occurred on October 23rd (D.R. and P.S.). A flock of 25 near Hookstone Wood, Harrogate on September 12th was unusual (M.R.S., A.F.G.W.), possibly a gathering prior to migration.

304. Redwing (178/9).—On April 14th at Ossett Spa S.F., *c.* 100 mounted to a good height and departed to north-east just before dusk (E.G.). Heard over Leeds on night of March 31st from birds passing, and over Hornsea on April 12th, 14th and 17th (R.W.D.). Many were at Malham Tarn Woods in fog on March 31st, most had gone on April 1st (P.F.H.). Song was heard from several late flocks. The latest party (*c.* 35) passed north-north-east over Burton Leonard on April 24th (M.R.S., A.F.G.W.). A lingerer was at Spurn on April 27th.

The earliest autumnal Redwings have usually crossed the coast unseen; this year there were two at Knaresborough on October 6th (I.D.), and three over Guiseley on the 10th. The next were *c.* 50 at Spurn on October 14th, after which occurrences there were daily with maximum of *c.* 480 on the 23rd. At Flamborough occurred on October 15th and numerously on the 26th (A.J.Wms.); 32 came off the sea at Hornsea on the 19th (M.K.T.). October 17th was the first date at Huddersfield (R.Cr.), Harrogate (A.F.G.W.), Ilton (P.Y.) and Leeds (M.D.), and the 18th at Malham Tarn (P.F.H.); after which Redwings appeared in many places. On November 2nd *c.* 200-300 flew up and down the Luddenden Valley in thick fog (C.R.S.). On October 19th between 4-30 and 5-15 p.m., *c.* 116 flew up the Gouthwaite Valley over the

dam, accompanied by *c.* 18 Blackbirds, against the stream of incoming roosting Blackbirds (M.R.S., A.F.G.W.).

307. Ring-Ousel (182).—:

Ringed, Wainstrells (Cold Edge Dam), Halifax, 22/5/58; Puebla de Valverde (Ternel), Spain, 23/11/58.

Ringed, pull, near Keighley 12/5/55; Chadderton, Oldham 28/3/58 (dead under electric wire) (J.C.L.).

Five were on Ingleborough on March 26th (E.E.J.), and five on Beamsley Moor (3♂, 2♀) on March 29th (E.S.S.), and birds were on Ilkley Moor on March 30th (O.M.P., W.F.F.), and Castleton Moor on the 31st (D.R. and P.S.).

Three were at Spurn on April 8th-9th. A dead male was found in a garden at Cloughton on April 6th (R.S.P.). If the Luddenden Valley had ' fewer than usual ' (C.R.S.), breeding pairs were generally normal—' 12 seen along two miles of road ' and ' 15 to 20 pairs in a day's ramble ' both on May 26th. Last seen on Ilton Moor on October 6th (P.Y.). Not one was recorded at Spurn in the autumn.

308. Blackbird (184).:

Ringed, Everingham, 28/7/56 (J. W. Lund); Gormanstown, Co. Meath, 27/11/57 (*British Birds*).

Ringed, Spurn (♀), 6/11/54; Häuröm, near Bostrup, Jutland, 22/2/58.

Ringed, Spurn (♀), 4/10/57; Cranswick, Yorkshire, 6/3/58.

Ringed, Spurn (♂), 19/11/56; Ware, Herts., 18/3/58.

Ringed, Spurn, 26/10/57; near Den Helder (Noord Holland), 12/4/58.

Ringed, Spurn (juv ♂) 8/10/55; Flekkefjord, (West Agden), Norway, 8/4/58.

Ringed, Spurn, 6/11/54; near Gimo (Uppsala), Sweden, 18/7/58.

Ringed, Spurn, (♀), 5/4/58; Gamborg (Fyn), Denmark, 6/12/58.

Ringed, Spurn (♂), 20/1/55; Hull, 13/10/58 (struck glass of greenhouse).

Circa 100 males in a field south of Gouthwaite on February 22nd was unusual (E.C.S.). Spring passage was more obvious at Spurn than usual, from late March to mid-April, with peak of *c.* 100 on April 5th. From South Gare to Marske there was a sudden increase from March 29th to 30th in Blackbirds and very pale Robins, which were crowded into every bush and wind-break. On the 30th Blackbirds were estimated at *c.* 200, Robins at *c.* 40; there were much smaller numbers of a few other species, including a Black Redstart (D.R. and P.S., P.J.S. and others). Blackbirds were numerous along the cliff-top at Flamborough on March 30th (H.O.B.) and *c.* 30 were there on April 10th (A.J.Wms.). Passage was noted at Malham Tarn on several days in spring: March 12th and 24th, April 12th and 14th (P.F.H.).

Autumnal passage at Spurn took place from October 17th to mid-November with maxima of *c.* 180 on October 18th, *c.* 250 on the 24th, *c.* 200 on November 7th. Passage at Redcar was comparatively small, but took place in the same period. The effect inland was seen in large numbers on October 19th, 26th, and November 2nd and 9th at Chevet and Bretton (E.G.); passage at Malham Tarn on October 20th, November 2nd to 3rd, November 11th, and December 3rd (P.F.H.); *c.* 100 about Fairburn on November 6th (C.W.); influx near Sheffield, October 27th to 29th; and birds were calling over Sheffield at 11-10 p.m. on November 16th (R.G.H.), and there were large numbers along the upper Humber on November 1st (D.A.G.) and 15th (B.S.P.), and elsewhere during the same periods.

A parasite from a Blackbird at Ossett on August 14th was identified as *Ornithomyia avicularia* (L.) *hippoboscidae* by Mr. Freeman of the B.M. (Nat. History) (G.C.). A. F. G. Walker and Miss M. R. Sanderson trapped Blackbirds at three roosts with interesting results, which are probably not yet complete—a short article seems indicated.

311. Wheatear (186).—Recorded at 16 places in March; the earliest were on March 26th at Burley Woodhead (W.F.F.), near Sheffield (M.D.), and at Spurn on the 27th, and five on the 28th, and seven on the 29th, four at Redcar on the 28th (D.R. and P.S.), one at Cowden (Holderness) on the 29th (W.A.B.), and two on Beamsley Moor (E.S.S.). Wheatears continued to seek their territories and to pass through the county, and on the coast until the end of May. *Circa* six on Eccup Moor on April 27th were thought to be ' Greenlanders ' (A.H.B.L.). The most remarkable concentration was noted on April 7th near Elland with at least 57, mostly males, in two fields half-a-mile apart (T.K.). Other maxima included 16 at Flamborough on May 12th (A.J.Wms.), 12 at Spurn on April 20th (and up to eight in May), 14 in one field at Redcar on May 7th (D.R. and P.S.).

Began to reappear at Spurn from July 11th, and at Flamborough from the 13th

(H.O.B.), and passage continued, to culminate in the extraordinary ' hold-up ' of early September, which affected the whole of the Yorkshire coast. Coastal fields at Redcar were ' full of Wheatears ' on September 3rd and the species remained numerous until the 9th. *Circa* 40 were at Sewerby on September 4th (Miss J.F.). *Circa* 200 were on Filey cliff tops on September 3rd to 4th (A.J.W.), large numbers were at Flamborough on the 5th (I.D., G.H.), and at Bempton on the 7th (H.O.B.), and up to *c.* 250 at Spurn from September 3rd to 9th. Probably more Wheatears were along our coasts during that period than have previously been recorded. Late Wheatears were recorded at Welton Saltings (upper Humber) (B.S.P.), and at Redcar (D.R. and P.S.) on October 12th, and at Spurn on the 15th. The latest inland were near Doncaster on October 9th (R.J.R.), and one on Ilton Moor on the 31st (P.Y.)—I have later records for the coast but not inland.

317. Stonechat (198).—Occurred on a number of dates from January to April 10th (one at Spurn) and April 22nd (one at Fly Flatts (E.C.J.S.)) in a number of areas—Teesmouth, Bridlington, Hornsea, Welton Saltings, Copgrove, Derwent floods, near Guisborough, Fairburn, Huddersfield, Harrogate, Sheffield—most records being in March. In autumn regularly in small numbers from Kilnsea to Spurn from September 27th to the year end, but not inland.

318. Whinchat (197).—One at Knaresborough on April 23th (J.R.M.), and one in Bowland on April 27th (P.Q.) appear to have been the earliest. Widely spread in the breeding season. Small passage noted at Spurn, Redcar, and Flamborough in May. Whinchats figured prominently in the ' hold-up ' from September 3rd, with considerable numbers at Redcar, Filey, Flamborough and Holderness down to Spurn, where *c.* 50 on September 4th, 5th and 8th, and *c.* 75 on the 9th were most unusual. The last occurred at Spurn on October 4th, and at Brotherton Ings, a male, on October 11th (C.W.).

320. Redstart (201).—Two ringed at Spurn during September, with 11 days between, were recovered, well inland, in North Spain and North Italy, separated similarly as to date. Winds were east to south on the 6th, north to north-east on the 17th. Details were:

Spurn, 6/9/58; Viana (Navarra), Spain, *c.* 29/9/58 (42° 31′ N., 2° 22′ W.).
Spurn, 17/9/58; Provaglio d'Iseo (Brescia), Italy, 9/10/58 (45° 39′ N., 10° 03′ E.).
Ringed, pull, near Grassington 12/6/54; Baracaldo (Vizcaya) Spain 17/4/55 (J.C.L.).

First arrivals were on April 22nd: two at Ripley (A.F.G.W.), one at Middleton (Wharfedale) (C.G.B.), and one at Masham where a pair were building at the same place on the 29th (E.E.J.). Noted at Spurn from April 26th to May 31st on 14 days, and at Flamborough on May 8th, 11th and 14th. Odd birds reappeared at Spurn from August 13th, with maxima from September 2nd (*c.* 150 on the 4th, *c.* 200 on 5th and 6th, *c.* 150 on the 7th, *c.* 100 on 8th and 9th, and fewer after; last birds were noted on October 7th and 18th). Numerous in early September about Filey, Bempton, Flamborough, etc.

321. Black Redstart (202).—Ringed, Spurn, 5/4/58; found dead nearby where was nest-building on 7/5/58, near Boizenburg (Mecklenburg), East Germany (53° 22′ N., 10° 43′ E.)—another proof of German origin of our Spurn Black Redstarts. Occurred Spurn daily (up to five) from March 28th to April 11th, and on 13th, 18th, 19th, and May 10th and 11th, and one on September 7th—the only one of autumn. This spring movement was also in evidence elsewhere. A male was at Redcar on March 29th and a female at South Gare on the 30th (M.R.S.), and a female was dead on Filey Brigg on the 30th (D. Mann), and one at Scarborough on April 6th (R.S.P.). Two were on the Humber bank near Melton on April 5th (B.S.P.), and one near Brough on the 9th (S.M.). One was at Hawksworth on April 2nd (O.M.P., H.J.W.) and one at Staveley G.P. on the 4th (I.D.). A male at Sheffield on June 18th was in full breeding plumage (D.R.W.).

322. Nightingale (203).—Occurred at Spurn on August 15th and 29th, and September 1st and 3rd. I have no reports of breeding.

324. Bluethroat (205/6).—A White-spotted Bluethroat, caught at Spurn on April 6th, was the only one of its race known in Yorkshire since April 12th, 1876, when one was found under wires near Scarborough (E. S. Skinner).

Bluethroats believed to be of the Red-spotted race, occurred at Spurn from September 4th to 9th, four being recorded for the 6th, and during the same period three were above Filey Cliffs on the 4th, two of which showed an appreciable amount

of blue on the throat—one still having a red spot in the blue (A.J.W., R.S.P.), one at Flamborough on the 6th (A.J.Wms.), one at Bempton on the 7th (H.O.B.), and one at Redcar (D.R.S.). At Filey Brigg one occurred on September 18th (M. Ness).

325. Robin (207/8).—A ' pull ' ringed Knaresborough, 22/6/58, was retrapped three miles west-south-west at Harrogate, 11/11/58 (J.R.M.).

The spring passage of continentals was unusually clearly marked, from March 28th to April 18th, especially at Spurn with maxima of *c.* 30 on April 4th and 5th, *c.* 100 on the 6th, *c.* 60 on the 7th, *c.* 50 on the 8th, after which numbers decreased. At Flamborough one was noted on March 29th, at least seven on the 30th, and ten on April 1st (A.J.Wms.). At Redcar, obvious immigrants, all pale grey and orange, occurred on March 29th and 30th (estimated on the 30th at *c.* 40 (M.R.S.)). Every hollow along the cliffs at Marske had similar birds on the 30th, and at least five were at South Gare on the 31st (D.R. and P.S., P.J.S.). The autumn passage was much less marked, and six only, on November 29th, was the maximum at Spurn. One came off the sea at Flamborough on November 19th (A.J.Wms.).

327. Grasshopper Warbler (145).—Occurred at Spurn on May 3rd and 18th. Was heard in the breeding season (May to August) near Redcar, Guisborough, Sleights, Robin Hood's Bay, Bramham Park, east and west of Doncaster, west of Sheffield, and at Harewood; all through the season in two or three areas, and no doubt bred.

333. Reed-Warbler (149).—Bred in the usual places. A bird at Hornsea Mere on April 23rd was early (A.J.W.). Single birds were at Spurn on May 4th and June 7th, and on Filey cliffs on September 3rd (E.G.), and one Welton Water September 20th (B.S.P.).

337. Sedge-Warbler (153).—First noted on April 26th at Rodley S.F. (A.H.B.L., R.V.J.), and at Fairburn, where many bred (C.W.). Some small apparent passage at Redcar and Spurn in early May; maximum for year at Spurn seven on May 9th. Four at Welton Water, September 20th (B.S.P.).

340. Icterine Warbler (155).—Single birds were caught at Spurn on September 1st, 5th, 6th and 14th, and one seen in Beacon Lane on the 13th. One in Beacon Lane on August 5th was described as Icterine or Melodious (G.R.E., D.D.).

343. Blackcap (162).—Reported at Fixby on March 23rd and April 2nd (F.G., E.C.J.S.), and one at Chevet Park on April 5th (A.F.). Occurred on April 19th at Knaresborough S.F. and near Gouthwaite (J.R.M., D.S.), and at Spurn where noted on three more days to May 27th, and on 12 days from September 6th to October 24th, never more than two. One was at Gouthwaite on November 29th (A.F.G.W.).

344. Barred Warbler (159).—Caught at Spurn—one, September 3rd; one, October 5th. One, possibly two, were at Flamborough on September 5th (I.D., G.H.).

346. Garden-Warbler (161).—Noted near Masham on April 23rd (E.E.J.). Only on two days at Spurn in spring (April 27th and May 10th). In autumn up to four occurred daily August 8th to 21st, and daily from September 1st to 7th with maximum of *c.* 25 on the 3rd. Fairly numerous on Filey cliff tops on September 2nd (E.G.). Noted Flamborough one on September 5th (I.D., G.H.), and three on the 13th (A.F.G.W.). The latest was one near Ormesby on October 3rd (J.P.U.).

347. Whitethroat (163).—An adult female ringed at Knaresborough S.F. on 31/7/55 was retrapped 6th and 13th July, 1958, and three adult hens of July, 1957, were retrapped May 30th, June 23rd and August 12th (J.R.M.).

First arrivals were noted on April 23rd near Harrogate (M.W.) and at Willerby (D. Millin). Maxima at Spurn in spring were 25 on May 10th and 35 on May 18th, which was more than were noted in autumn—the species is both passage migrant and a local breeder there—the last occurred on October 5th. The last inland was one at Knaresborough on September 27th.

348. Lesser Whitethroat (164).—Recorded, Adel Dam, April 29th (G.R.N.). Bred near Harewood (R.V.J.), and near Doncaster (R.J.R.), and recorded from areas near Ampleforth, Catterick, Burley, Eccup, Fairburn, Pulfin (Hull river), Willerby and Knaresborough where single juveniles were ringed on five days from July 6th to August 10th (J.R.M.). Two were noted at Spurn on May 8th, 14th and 17th and ones on May 18th and September 19th.

354. Willow-Warbler (132).—Appeared late, not until April 20th or after in most places; yet there were the odd, almost freak, arrivals on March 30th—near Sheffield (R.G.H.), in the Don Valley (R.J.R.), and at Fairburn on April 2nd (C.W.) and Gargrave (J.N.T.); Knaresborough, April 8th; and at Littlebeck on April 9th

(A.B.W.). Spring passage began at Spurn with birds on April 4th-5th and on the 26th-27th, and became daily from May 3rd to 15th (maximum *c.* 100, May 10th) and odd birds on eight days to June 8th. Began to return with one on July 11th and two on the 31st, increasing to *c.* 20-30, August 15th-17th, and again from September 2nd to 9th, maximum of *c.* 250 on the 6th (E. S. Skinner); then fell to one on the 21st, after which a few *phylloscopi* were not recorded specifically. Many were at Flamborough from September 3rd to 6th (A.J.Wms.,I.D.), and on Filey cliff tops (A. J. Wallis, E.G.), and about Redcar from the 2nd (D.R. and P.S.). Late birds were noted at Melton: seven on September 20th (B.S.P.) and one at Harewood (G.R.N.), and one at Fairburn on October 5th (R.H.).

A Willow-Warbler caught at Gouthwaite on August 31st was considered to be of the northern race (A.F.G.W.). I have caught one in my garden that could have been so considered as early as August 19th but was not optimistic enough to claim it as *P. t. acredula*, and thought it more likely to be a Yorkshire effort at morphological simulation.

356. Chiffchaff (129).—Late generally, but one sang in Farnley Park on March 29th (D.B.I.), and was seen or heard at Esholt (E.E.J.), Ossett S.F. (A.F., E.G.), Harewood (G.R.N., M.D., R.V.J.) and Harrogate S.F. (N.) (I. and S.D., A.F.G.W.) all on March 30th. One during east winds at Tong Park, Baildon on March 16th, was unusual (J.C.L.).

At Spurn one also occurred on March 29th, and from April 9th to 11th. Occurred again on September 9th, and on nine more days to October 3rd, with odd birds caught on October 18th and 22nd. Several were recorded inland in early October, the latest being on the 5th near Huddersfield (sang) (R.Cr.), and at least four in Coxley Woods (one sang) (E.G.).

357. Wood-Warbler (135).—The earliest sang near Hayburn Wyke on May 2nd (R.S.P.), and in Spa Gill Wood (M.R.S.). One was caught at Spurn on September 1st.

360. Yellow-browed Warbler (137).—One was caught at Spurn on October 29th, and one was observed closely on November 25th and 27th (P.H.J.).

364. Goldcrest (126/7).—Spring passage was evidenced by one at South Gare on March 29th and *c.* seven on the 30th (P.J.S., I.S.); three at Saltburn on April 2nd (K. Smith) and at Redcar on the 4th and 7th (D.R. and P.S.). Six were at Flamborough on April 10th and two on the 21st (A.J.Wms.). At Spurn were one on March 29th, five on the 30th, and up to three daily to April 20th, with ones on April 27th, May 3rd and 8th. A Goldcrest in the Batley area on April 12th (Batley N.S.) may have been a wandering migrant. In Mulgrave Woods on May 3rd a pair were building in twigs against an oak trunk (A.B.W.).

Several were on Filey cliffs on September 3rd (E.G.). One was at Spurn on September 19th, and up to three on 12 days to October 28th, and one on November 30th. One was at Redcar on October 5th. A number of records inland could refer to immigrants.

365. Firecrest (128).—One at Spurn on April 19th was first spotted by D. Scott and D. F. Walker, and verified by C.E.A., E.S.S., C.W. and others.

366. Spotted Flycatcher (121).—May 3rd, near Ilkley (O.M.P.); May 4th, at Crosshills (E. Greenwood); and two pairs in the Italian Gardens, Scarborough (Mr. Cartright per A.J.W.) were the earliest seen. Began at Spurn with one on May 9th, five on the 10th, and two on the 11th, and another batch of up to six from May 25th to 31st. Two appeared on June 20th. On May 11th, five were on Melton Saltings (B.S.P.). In autumn, after one on August 14th and 16th, birds appeared from September 1st to 18th, maximum of *c.* 20 on September 7th, an unusual number for one day. Odd ones appeared on October 8th and 12th. The early September passage was also unusually noted at Redcar with 11 on September 2nd (D.R. and P.S.). Reported as unusually numerous about Sedbergh (S.S.S.), and unusually scarce about Methley (P.B.), and in the Luddenden Valley (C.R.S.). Young were still in a nest in Filey Ravine on September 7th (E.G.). One at Bretton Park on September 27th was the last recorded inland.

368. Pied Flycatcher (123).—Birds on April 27th were the earliest—two at Bolton Abbey (E.S.S., R.C.P.), and three near Masham where two were already building (E.E.J.). Bred in the usual areas and at Bretton Park (E.G.) and in the Sheffield area (D.R.W.). One on May 10th was the only one in spring at Spurn. In autumn occurred at Spurn daily from August 18th, with sudden increase to large numbers from September 2nd to 9th (*c.* 200 on the 5th), and a sudden drop to

one on the 10th; the last was on October 4th. There were very large numbers at Flamborough from September 3rd to 8th (A.J.Wms., I.D., G.H., H.O.B.), and about Filey (E.G., A.J.W.), and at Redcar in parks, trees in streets, fox-covert, etc., and was numerous all that week (D.R. and P.S.). We have not been able before to record such an influx to the Yorkshire coast of Pied Flycatchers, Redstarts and Willow-Warblers. See E. S. Skinner's table of species trapped at Spurn. A Pied Flycatcher at High Royd on September 6th (T.K.) had probably diverged from the same movement.

370. Red-breasted Flycatcher (125).—Occurred at Spurn on September 3rd, 13th and October 22nd, and two at Flamborough on September 13th (A.F.G.W., M.R.S.).

371. Hedge-Sparrow (210/11).—Very seldom do we get anything so indicative of spring migration by this species as from April 5th to 11th at Spurn when up to *c.* 40 were recorded. Twenty-two were ringed in the six days. That immigrants (from where?) do reach Spurn is certain. A maximum of 12 occurred on several days in September and October. Behaviour of a few were suggestive of migrants at Redcar (D.R. and P.S.).

373. Meadow-Pipit (76).—Heavy spring passage at Redcar took place north-westward from March 30th to April 2nd, and on April 6th, 8th and 9th (D.R. and P.S.). There was a stream of small flocks to the moors west of Sheffield on March 30th (R.G.H.), and the return to the Nidderdale Moors also took place on March 29th-30th. *Circa* 200, halted at Harrogate S.F. on April 4th, was probably due to severe weather (M.W., A.F.G.W.). At Spurn numbers reached *c.* 50 on March 28th to 30th, April 4th and 20th. At Redcar autumn passage was less noticeable than in spring but again north-westward on September 7th, 14th, 20th-21st, and on October 12th (D.R. and P.S.). Spurn had its usual heavy passage from September 10th to early October, maxima being recorded of *c.* 600, September 14th, *c.* 1,600 on September 20th, *c.* 1,250 on September 23rd and *c.* 700 on October 2nd and 3rd—numerous at Cherry Cobb Sands on September 11th and 12th (H.O.B.). *Circa* 250 occurred over Craggs Farm, Catterick, on September 14th, and 276 at Hornby on September 21st—directions of flight were southward (G.R.P.). *Circa* 200 on Fairburn Slag on September 28th (E.G.), and *c.* 400 on October 4th (C.W.), and passage mainly south-eastward over Doncaster from September 16th to mid-October, and in the Harrogate, Knaresborough, Ripley, Pateley area in the same period (R.J.R., A.F.G.W.), were probably connected with the coastal movements. One ringed, Ben Rhydding, 11/11/56, was recaught 14/12/57, and 2/11/58 (E.S.S.), and one ringed, 7/6/58 (Wharfedale N.S.); Tondela (Beira Alta), Portugal, 22/10/58.

374. Richard's Pipit (73).—Full details were taken of a large, long-legged, dark pipit at the Spurn Lagoon area on November 1st by W. C. Wakefield and D. J. R. Potter. One occurred near the "Crown and Anchor" on November 27th and 28th (J.K.F., P.H.J.) and was caught on the 29th, and carefully measured and examined, and full details entered in the Log (J.C., E.S.S.). The continued occurrence of this species at Spurn in November arouses conjecture concerning specimens possibly overlooked.

376. Tree-Pipit (75).—'Pull' ringed, Gouthwaite, 22/6/58; caught Bustos (Beira Litoral), Portugal (40° 30′ N., 8° 38′ W.), 21/9/58 (M.R.S., A.F.G.W.). Records in the Dunsop Valley on March 30th (A.P.), and at Crosshills on April 5th (E. Greenwood), were in the nature of 'freaks'. *Circa* 20 near Brighouse on April 10th alighted near a wood and were at once attacked by a Sparrow-Hawk. One in Chevet Park on April 13th (E.G.) was still nine days before the next noted.

Odd Tree-Pipits occur at Spurn in most springs and autumns; this year the early September rush brought up to *c.* 50 from the 2nd to the 6th, and fewer to the 11th. At the same time Tree-Pipits occurred in some numbers on Filey cliff top (E.G.), and at Flamborough (I.D., G.H.). The last called in Chevet Park on October 5th (E.G.).

379. Rock/Water-Pipit (81).—Occurrences on the coast were normal except in October, when up to 21 occurred at Spurn from October 18th to the 27th, a few after, and up to 23 in the first few days of November. Nine were noted at Redcar on October 18th (D.R. and P.S.). The Water-Pipit is now classed as the typical race of *Anthus spinoletta*—J. R. Mather had excellent views of one at Knaresborough S.F. on April 18th, noting the white eye-stripe, blueish-grey head, dark back, legs and tail (with white outer feathers), and unstreaked underparts.

380. Pied/White Wagtail (90/91).—'Alba' wagtails at Spurn on ten days

from March 22nd to May 17th were mostly passing birds that could not be determined subspecifically—three on April 27th was the maximum; on the same day five White Wagtails occurred at Knaresborough S.F. where spring passage was stronger than usual (J.R.M.). Two ' whites ' were at Redcar on April 6th, and nine ' albas ' coasted north-west early on March 30th (D.R. and P.S.)—one was at Spurn on the 30th. White Wagtails also occurred on April 9th at Castleford (C.W.), at Barnoldswick on the 13th (A.P.), in Garsdale on May 3rd (E.C.S.), at Harrogate S.F. on May 16th (A.F.G.W.), and at Hornsea Mere on four days from April 6th to 11th (R.W.D., D.A.G.). There were a few ' whites ' recorded in July to autumn when changing plumages of old and young makes certain diagnosis difficult, and when passage of a few pied/whites was noted at Spurn on many days.

A roost of Pied Wagtails near Masham held none on August 28th, *c.* 143 on September 8th, 226 on September 19th, and none on October 3rd (E.E.J.), and the species roosted similarly in reeds at Ossett Spa S.F. (A.F.), and elsewhere.

381. Grey Wagtail (89).—Occurred at Spurn more regularly than usual from August 12th to mid-October, and at Redcar coasting north-west in the same period. A party of eight flying down the river at Fairburn on September 24th was unusual (C.W.).

382. Yellow Wagtail (88).—A juvenile ringed at High Royd, 28/7/57, was retrapped 17/8/58 (T.K.). First noted at Fairburn on April 7th (A.F.). One at Ben Rhydding on April 20th had a pale blue head and prominent eyestripe (C.G.B.). By May 4th, *c.* 150 were roosting in the marsh by Gouthwaite Reservoir (A.F.G.W.). Very late single birds were at Patrington on October 22nd (J.D.P.), and in the Barnsley area on October 26th (D.S., G.A.). A few were noted at Spurn on a few days from April 27th to March 26th, and more regularly from August 11th to September 27th, with a straggler on October 11th. At South Gare on August 24th Yellow Wagtails arrived in ones and twos from 5-45 a.m. until *c.* 50 were about the breakwater by 8-30 a.m. (D.R. and P.S.). Roosts were noted at several places during August to September.

383. Waxwing (120).—*Circa* 20-30 were at Scarborough on January 1st (A.J.W., T.M.C.), and in the Town Centre on the 17th (A.J.W.). A male found dead in an attic on January 15th at Menston was said to have died of thirst (P.S.). Frequent in Harrogate and district in parties of up to a dozen up to March 13th. Elsewhere flocks of up to a dozen at Cloughton in early January (R.S.P.), and of *c.* 25 at Sleights on the 15th (Mrs. B. M. Wilkinson) were maxima. One at Shipley on April 8th appeared to feed on pear buds (J.C.L.). The latest was at Scarborough on April 14th (D. Mann).

Fairly frequent from December 5th (one at Gouthwaite) (M.T.-B.) to the year end, almost entirely in V.C. 61 and 62, but three had reached the Malham Tarn trees on December 13th (P.F.H.). *Circa* 30 were at Claughton on December 26th (R.S.P.). For three days from December 28th *c.* 200 were at Ayton (A.J.W.), and at the same time large flocks were seen near Thornton-le-Dale and Pickering. One was at Flamborough on December 19th (A.J.Wms.). Only seen at Spurn on six days from December 20th, with maximum of *c.* 25 on the 27th, some of which passed southward.

384. Great Grey Shrike (114).—Not a single bird was recorded.

388. Red-backed Shrike (119).—A female near Great Ayton on May 27th (A.J.V., K. Smith), and a male on the 28th a quarter of a mile away (K. Smith, G. Procter), where the pair chased each other on the 29th, arousing hopes which were dispelled on the 31st when neither could be found (P.J.S., D.S.-S.).

The early September rush at Spurn included this species almost daily from two on August 31st to September 14th, with three on two days—birds were probably fewer than the 23 ' bird-days ' involved. One occurred at Flamborough on the 13th (A.F.G.W., M.R.S.), and on the 16th (A.J.Wms.), and one near Scaling Dam on the 14th (D.G.B.).

389. Starling (14):

Ringed as pull, Figgjo (58° 47′ N., 5° 49′ E.), Hoyland, five miles south-east of Sandnes, Rogaland, Norway, 4/6/55; found dead by a schoolgirl in Hull, 5/2/58 and sent to the S.B.O. (R.F.D.).

Ringed, Hoyland, Rogaland, Norway, 27/5/56; near Higham, near Barnsley, 1/3/57 (*British Birds.*)

Ringed, Redcar, 4/3/56; Humppila (Haine), Finland, 60° 56′ N., 33° 22′ E. June, 1956 (D.R. and P.S.).

Ringed, Spurn, 20/11/54; near Ketrzyn (Olsztyn), Poland, 54° 05′ N., 21° 24′ E., 20/1/58.
Ringed, Spurn, 4/11/57; Darlington (drowned in water butt), 2/4/58.
Ringed, Spurn, 4/6/55 (juvenile); Kirby Sigston, Northallerton, *c.* 28/3/58; dead in unoccupied room.
Ringed, as adult, York, 31/1/57; near Hagenow, Meiklenburg, East Germany, 8/3/58 (J. A. S. Borrett).
Ringed as juvenile, near Halifax, 21/6/58; Knottingley, 5/7/58 (T.K.).
Ringed as adult, Octon (Wolds) roost, 18/1/58; Coxhoe, Co. Durham, 20/2/58 (T. M. S. Birch).
Ringed as pull, Stenburg (Rogaland), Norway, 24/5/55; Octon (Wolds) roost, 15/11/57 (T.M.S.B.).
Ringed, ad., Knaresborough 23/1/58; Poliksky, Poland (53° 58′ N. 19° 20′ E.) 29/6/58 (J.R.M.).
Ringed, ad., Knaresborough 29/3/58; Rügen I, Germany (54° 26′ N. 13° 27′ E.) 28/9/58 (J.R.M.).

The B.B.C. reported many thousands incoming off the sea at Bridlington on January 22nd; on the same day there were very large numbers about Redcar, Harrogate (A.F.G.W.), and about Otley from January 22nd to 24th (P.S.). Some birds from the large flocks converging from the Doncaster area toward the Howden Dyke roost on March 3rd dropped to a fox-covert, as the main body passed over, being used apparently for overspill population; when R. J. Rhodes explored the fox-covert some 10,000 Starlings came out. Other roosts have been located, some being very large; one near Fountains Abbey in November holding some half-million birds (A.F.G.W.). Large numbers roosted in the reeds at Hornsea Mere from summer to December—on the 21st the roost appeared to be deserted (T.M.S.B.).

There was heavy coastal movement at Redcar and South Gare in October and early November. Between Saltburn and Redcar on October 19th 2,400 passed in 45 minutes and on November 2nd *c.* 1,700 passed in 75 minutes and the Starlings continued to stream over, some settling soon after crossing the coast, others continuing; the immigration diminished after November 12th and then ceased (D.R. and P.S.).

At Spurn the period of heavy autumnal immigration lasted from October 18th to November 8th, with odd days between when little took place. October 22nd was a maximum day—' 12,266 birds counted and the actual number must have been half as many again '. Parties of Starlings arrived continually off the sea from first light to nightfall, at the Narrow Neck, over the Warren, and farther north. Those arriving south of the Warren mostly turned northward up the peninsula before turning inland. At times the field behind the cottage was black with them (R.F.D.).

391. Hawfinch (18).—One came down to feed on my lawn at Sleights on January 11th (C.E.A.B.). Noted in a number of areas: Mulgrave Woods, Hornby Park, Grantley Hall, Ripley, Knaresborough, Harrogate, Denton, Bolton Abbey, Apperley Bridge, Willerby (E. Riding), etc.

392. Greenfinch (19).—
Ringed, Rodley S.F., 4/9/57; 5/5/58 at Shipley.
Ringed, Rodley S.F., 4/9/57; 6/5/58, at Horsforth.
Ringed, Spurn, 25/11/57; dead, Burstwick (13 miles north-west), about 26/4/58.
Ringed, Harrogate, 19/2/57; Kirkby Overblow, 1/8/58 (four miles south-south-east (A.F.G.W., M.R.S.).
Ringed, adult male, Harrogate, 4/1/58; Swanland, Ferriby (25 miles east-south-east), about 5/4/58 (M.R.S.).

Considerable numbers were at Spurn in the early months, up to April 20th. On the 19th, 169 were counted flying south between 0430 and 0730 hours (C.E.A., C.W.), and there was westward movement at Melton (D.A.G., R.G.). Ninety-four flew south on November 6th at Spurn.

393. Goldfinch (20).—Present at Spurn on many days in the early months. Two parties of three and a single bird flew south on May 18th (R.F.D.), the most seen in a day in the year. Five were included in the large passage of October 23rd. Present again in late December. *Circa* 20 were in alders by Harewood Bridge on December 30th (D.B.I.).

394. Siskin (21).—*Circa* 24 were in the Forge Valley on January 18th, and 12

in Raincliffe Woods on January 26th (A.J.W.), and there are records of similar and smaller parties in a number of areas, in the early months, and in autumn, sometimes in association with Redpolls, frequently about alders, of which perhaps the most notable was a flock of 45 Siskins at Gouthwaite on December 26th (A.F.G.W.). The first of autumn appears to have occurred at Spurn, one on September 28th, and at Fairburn one on October 4th, and four on the 5th. Eleven were at Spurn on October 24th.

395. Linnet (30).—Ringed, Spurn, as pull, 25/5/57, and recaptured, 30/5/58; Capbreton, Landes, France, 11/11/58. Always present at Spurn, numbers were unusually large in January to March 24h (*c.* 300 recorded, March 8th to 10th) perhaps due to severe weather and provided seed. Bred in smaller numbers than some years ago. Numbers recorded reached a maximum of 546 on October 5th, counted passing south from 0600 hours to 1340 hours (J.C.). D.R. and P.S. thought passage was also taking place at Redcar on October 5th although obscured by local movement. They also recorded passage north-west at Redcar from May 7th to 9th.

396. Twite (28/29).—Probably bred at a new site in the Halifax area (C.R.S.), and certainly did in known established colonies (I.M.). A few were recorded at several other parts of the Pennines. Recorded at Spurn: four on September 21st, 14 on October 27th, 13 on November 2nd, and one or two on three other days in the same period.

397. Redpoll (23/25).—Occurred at Spurn on nine days from October 2nd to November 1st—*c.* 30 on October 24th being the most. Breeding status normal. A few coasted north-west at Redcar—six on May 17th and five on October 7th (D.R. and P.S.). *Circa* 60 at Ossett Spa S.F. on August 31st was probably unusual (A.F.). Fairburn showed 35 on November 6th. A mixed flock of *c.* 70 birds at Leighton on December 14th were estimated at six Redpolls to one Siskin (M.R.S., E.E.J.). Other mixed flocks were noted at a number of places.

401. Bullfinch (32/3).—One at Marske on January 1st and at Redcar on January 22nd were the first seen on the area by D.R. and P.S. Flocks of 11 at Guisborough on December 27th (D.G.B.) and at Harewood on December 28th (G.R.N.) were unusual. Generally fewer were recorded than in 1957.

404. Crossbill (36).—Up to ten near Rudland, January 19th to 21st (T.E.D.) was the only record prior to July. *Circa* 60 came in from sea in bad weather on July 3rd to Filey cliff top—one was so bedraggled that the coastguard picked it up and dried it in his hut (reported to A.J.W. by the coastguard). On July 3rd 17 were at Spurn and six on July 12th. *Circa* 20 were at Worsborough Reservoir (near Barnsley) on July 6th (D.S., C.E.B., A.A., D.A.), and two were near Sedbergh on the same day (Sedbergh S.S.). Four were at Eccup on July 10th (G.R.N., M.D.). Throughout July and August *c.* 50 fed on larch cones and thistle heads near Carlton (Helmsley) (A. Gordon). These flew west near Lofthouse on July 16th (D.S.). Three were in Grass Woods on July 19th.

Continued to occur to the year end, more or less continuously about Stanghow (ten, October 18th (M.A.)), and near Ilton (*c.* 20, December 12th to 19th (P.Y.)). The other areas concerned were: Fountains Abbey, *c.* 20, August 2nd (J. Boswall); Fairburn, seven on the 18th (C.W.); Farnley Park, *c.* 30 on October 21st (J.R.G.); *c.* 18 near Ripon on October 26th (R.G.H.); many about Great Ayton and in Bilsdale in November, and *c.* 50 at Fewston on November 9th (V.S.C., I.M., F.M.); Lofthouse, Harrogate, Rudland, Swinsty in December; and *c.* 30 in Heber's Ghyll Wood, Ilkley, on December 26th where two males were heard singing (G.H., R.A.P.).

407. Chaffinch (40/41).—Parties of 30 and 40 were at Flamborough on March 30th (A.J.Wms.), and March 30th was a day of much migration at Redcar, Chaffinches included (D.R. and P.S.). From March 29th numbers increased at Spurn with maximum of *c.* 70 on April 8th; only one remained on the 26th. In autumn some Chaffinches passed in early October, and the main passage delayed until October 22nd to November 1st, being very much the heaviest on October 23rd. On that day counting and recording from daybreak to 4-30 p.m. produced the huge total of 3,451 Chaffinches, flock after flock of up to 100 passing continuously in the morning (see *ante*). Passage by Chaffinches on a smaller scale appeared to reach a peak at Redcar on October 24th (26 in 30 minutes), and 30th (50 in 25 minutes) (D.R. and P.S.).

Ringed Spurn, ♂ 16/11/57; Renaix (East Flanders), Belgium 26/10/58.

408. Brambling (42).—Occurred at Spurn on a very few days until April 1st and then up to three daily until the 12th. The first of autumn came on October

15th, but although almost daily until November 6th, numbers in a day never exceeded 12, which was many fewer than in some years. There was very small passage at Redcar in the same periods (D.R. and P.S.). One at Harewood on April 19th was the latest recorded in spring (M.D.). Occurred rather scarcely in autumn. F. Jefferson noted a party of *c.* 50 beneath beech trees near Haxby in the winter months, and *c.* 40 were at Chevet on December 14th (G.C.).

At Gouthwaite from November 1st a party built up to *c.* 100 by the month end then declined rapidly (A.F.G.W.). *Circa* 40 were about Masham S.W. from November 30th (E.E.J.).

409. Yellowhammer (44).—Status unchanged.

410. Corn-Bunting (43).—September 10th was a late date for a nest with four eggs to be destroyed by a reaper of barley at Muston (Scarborough) (A.J.W.). Six parties flew south down the Spurn peninsula on March 9th totalling to 89 birds, and *c.* 30 passed down on April 7th. The species was not recorded so numerously in autumn. Occurrence on Craggs Lane Farm was said to be ' evidence of expansion ' in the Scorton-Bedale-Catterick area (G.R.P.). Where Corn-Buntings have ceased to breed we should ascertain if weed-killers or insecticides have been used on the breeding fields.

413. Red-headed Bunting (47).—One occurred by the Wath to Pateley Road on May 23rd (D. G. Leonard)—a farmer saw it in his yard shortly afterwards.

419. Rustic-Bunting (53).—On September 14th, 1958, A. E. Platt and J. Burley, near Blaxton G. Ponds, noted an exceptionally light-coloured bird in a flock containing Yellowhammers, Reed-Buntings and House-Sparrows, gathered in the top of a tall thorn hedge. At first the bird appeared like a white ball with a dark band across, until inspection through a telescope showed it to be preening, with head turned backwards, and breast and underparts forward. After crossing an intervening ditch, leaving J.B. with his eyes glued to the bird, A.E.P. made the last observations at a range of *c.* 20 yards through x8 binoculars. The forehead and crown were brown. Eye stripes and moustachial markings were just off white. A breast-band across the white breast and belly was composed of a series of brown spots. There were some smoky streaks on the flanks. The wings and back appeared brown with black steaks and spots. The tail was dark with white outer feathers. The observers are familiar with Lapland and Reed-Buntings and are sure the bird was a Rustic-Bunting, in transitional plumage, with which I agree. September 14th was at the end of the period of ' hold-up ' so prominent at Spurn and elsewhere of which it was probably an aftermath. The only previous Yorkshire record occurred at Easington on 17/9/1881 and was identified by the late W. Eagle Clark.

421. Reed-Bunting (55).—Ringed, Spurn, 26/9/51; retrapped, 19/4/58 (G.R.W.). *Circa* 250 were flocked on the edge of Hawksworth Moor on January 1st, 1958, with *c.* 60 Skylarks and 30-40 Snow-Buntings—snow was 12 inches deep (J.C.L.). Occurred at Spurn throughout the year; with a few included in the counts on some days of birds migrating southward. The estimate of 40 for July 12th and 13th no doubt included wandering young; *c.* 30 were noted on several days from September 20th to late October. Large numbers of young and adults were in reed-beds at Hornsea Mere on September 14th—again a place where migrants and local breeders could both occur.

422. Lapland Bunting (58).—Occurred at Spurn on January 18th, February 1st (three), and February 17th and 19th. Recorded in autumn from September 25th to 27th, October 3rd and 19th to 24th, and on eight days after to November 29th, and two on December 21st, with maxima of five on October 20th and 22nd, and of nine on October 24th (October 19th to 24th was a period of considerable migration; the Lapland Buntings mainly travelled with Skylarks (R.F.D.)). One was on stubble at Redcar on November 9th, and two on the 12th, 23rd and December 5th (D.R. and P.S.).

423. Snow-Bunting (59).—

Ringed, Spurn (♀), 5/2/56; Sandwich, Orkney, 25/3/58.

Ringed, Spurn (first winter) (♂), 25/2/56; Steigen, 67° 57′ N., 15° 00′ E., a small island just south of the Lofoten Islands (Norrland, Norway), 24/4/58.

Snow-Buntings recaptured at Spurn in early 1958 included three that had been ringed in early 1957 and one of January, 1956. Another, a hen, of January, 1956, was recaptured 10/1/57, and 28/12/58.

Snow-Bunting records were too numerous in the early months to be fully detailed.

From January to March maxima at Spurn were *c.* 850, January 18th; *c.* 500, Februray 22nd; *c.* 700, March 10th—three on April 20th were the last. At Redcar birds were scattered over stubble up to two miles inland (D.R. and P.S.). Notable flocks were: *c.* 30-40 on the edge of Hawksworth Moor in deep snow on January 1st (J.C.L.); *c.* 20 alighted on open ground in Middlesbrough on January 21st (A.E.F.), and *c.* 100 flew north-west over Ilton Moor on the same day (P.Y.). *Circa* 60 rose from ploughed land near Adel on a January day (R. M. Wreglesworth). Flamborough had up to *c.* 70 (January 11th and February 2nd) on a number of days (A.J.Wms.).

In autumn the earliest were one at Redcar on September 20th, and birds there, and at Spurn, on October 18th. *Circa* 250 at Spurn on December 28th was the maximum for that end of the year—*c.* 120 were at South Gare on the same day (M.R.S.). Redcar birds were again scattered widely over stubble (D.R. and P.S.). *Circa* 300 were on Filey cliff top on December 26th (M.N., R.A.). *Circa* 140 were on stubble near Stanghow on November 9th (D.G.B.). *Circa* 40 were at Flamborough on December 4th (A.J.Wms.). There were occurrences at Ogden, Ingleborough, Marsden and Slaithwaite Moors, Castleton, Southfield Reservoir, and over Leeds calling in fog at 9-15 p.m. on January 31st (R.F.D.). The most curious were single birds in gardens: at Fixby in fog on November 26th (per E.C.J.S.), and on the verge of Elland on December 6th (Miss M. Sharratt).

424. House-Sparrow (61).—Parties moved up and down the Spurn peninsula at various times but it is doubtful if they were foraging more than locally. Juvenile ringed, Knaresborough S.F., 22/6/57; Hessay, near York, 20/5/58 (11 miles east-south-east) (J.A.S.B.).

425. Tree-Sparrow (62).—At Spurn in small numbers on a few days, excepting October 20th to 24th when *c.* 60 were recorded on three days. On the 24th, 36 were included in the count of birds passing south from 0615 to 0845 hours (also 86 House-Sparrows). Nested unsuccessfully near Whitby where species rare (C.E.A.B., A.B.W.). At Cloughton, R. S. Pollard caught four on June 23rd and July 7th, where he had not known the species before in the breeding season.

On May 9th *c.* 100 dropped into bushes near Redcar, then 62 rose to a big height and flew north-west (a few turning back). Parties were restless there from October 9th to 12th, and three were seen definitely to coast north-west (D.R. and P.S.). Two near Blackmoorfoot Reservoir on November 5th 'may have been migrants' (R.Cr.). Other reports concerned areas where the species is known to breed.

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THE WHY AND WHEREFORE OF THE SOAPY POTATO

It would seem that, so long as potato blight is prevalent, and so long as we try to combat the disease, the soapy potato has come to stay and the mealy potato must remain just a happy memory. I can recall as a child my own father demanding such a potato.

The memory was refreshed last summer when I overheard, in a Huddersfield 'bus, a fretful conversation between two elderly housewives on the subject of soapy potatoes. It ended in a spirit of resignation as one of them rose to get out and said: ' No one nowadays has heard of a mealy potato. It's these chemists. We live in a scientific age.'

But it is not the chemist who is to blame, it is the geneticist who is trying to breed potato plants immune to blight; and this point was made over forty years ago by one of our Yorkshire mycologists, the late W. N. Cheesman, J.P., F.L.S., Past-President of the Y.N.U. and a foundation member of the British Mycological Society. In his Y.N.U. Presidential Address at Selby on December 2nd, 1916, entitled ' Economic mycology; the beneficial and injurious influences of Fungi ', he made this significant statement. I quote from *The Naturalist*, June, 1917, p. 197:

> ' Some years ago I pointed out to Mr. Massee that the microscopic structure of tubers immune to and those subject to the disease (*Phytophthora infestans*) differed, inasmuch as the former has much thicker cell walls than those of the latter. Mr. Massee desired me to verify this by growing a number of varieties under the same conditions of soil, climate and moisture, and he sent me some thirty or forty named sets, which were planted and grown in a plot under the same conditions, when further microscopical examination was made confirming my previous results; thus the varieties with thick cellulose cell walls were always watery or soapy when cooked and the varieties with thin cell walls were always mealy or floury. When a variety is newly raised from seed it has a thick cell wall and is consequently undesirable in the market for its cooking qualities, however desirable it may be for its productiveness on yielding larger and better shaped tubers. It is then to a great extent resistant to the disease; after a period of growth, the cell walls become thinner and the tuber more desirable for the table, but often losing its high productivity and at the same time becoming more susceptible to disease; hence many of the old varieties are completely discarded on that account, although much esteemed for table purposes.'

I knew Mr. Cheesman well and am glad that his genial countenance appears in many old photographed groups of mycologists. He once told me that he had shaken hands with Charles Darwin. I have shaken hands with Mr. Cheesman.

I have shown elsewhere (Haustoria of *Phytophthora infestans* and some other species, *Trans. Brit. mycol. Soc.*, **36**, 2, 138-158, 1953) how baffling the thick cell wall can be to the entry of the hypha of the fungus.

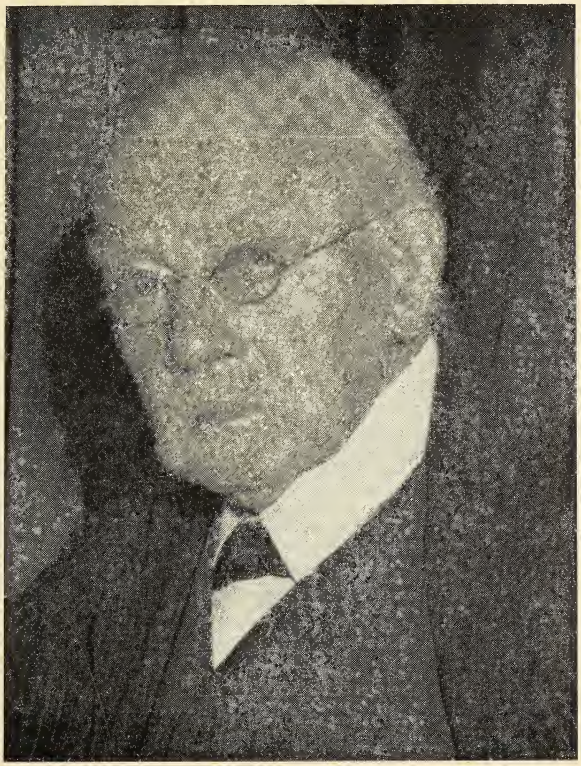
At a meeting of the British Mycological Society held in London on January 16th, 1959, D. H. Lapwood of the Rothamsted Experimental Station, Harpenden, after reporting his observations on ' field resistance ' of the potato *haulm* to blight observed that the reasons for the differing resistance of the *tuber* still await investigation and that he proposes to proceed to this.

E. M. Blackwell, Woodsome Lees

Obituary

EDWIN GOLDTHORP BAYFORD
(1865-1958)

With the passing of Edwin Goldthorp Bayford on December 10th last, at the age of 93, the Union sustained the double loss of its oldest member and the doyen of Yorkshire Entomology. Mr. Bayford was a unique figure in Yorkshire Natural History combining an immense lore relating to Union matters with a lively appreciation of modern needs and developments. He was a man of great personal charm and acute mental powers which he maintained to the end of his life as will be remembered by those attending the Annual Meeting at Barnsley on December 8th



1957, when, within a year of his death, he made a splendid speech of thanks in accepting Honorary Membership of the Union.

Many years the Chairman of the Entomological Section, Bayford will be best remembered by living entomologists for his remarkable and extensive knowledge of insects and their vast literature, and for his special interest in the Coleoptera of which his favourite family was the Coccinellidae or Lady-birds. But all his contemporary entomological colleagues have long since passed away so that his earlier important contributions to Yorkshire Entomology tend to be forgotten with the lapse of years. Fortunately, as President of the Union in 1936, he took as the interesting subject of an excellent Address at the Barnsley meeting 'The Rise and Progress of Coleopterology in Yorkshire' which has left us with a brief historical record of the period (*Naturalist*, 1937: 111-120, Pl. II). Perhaps his most important contribution was the section on Coleoptera with M. L. Thompson in the *Victoria County History* published in 1907, but he commenced publishing notes and papers in *The Naturalist* as early as 1888 (p. 329) and continued until shortly before his death (1957: 107). His first entomological note was actually published in 1887

(*Entomologist* 1887: 327) but most of his subsequent writings are to be found in *The Naturalist* or the *Entomologist's Monthly Magazine*. His first note to the last journal appeared in 1892 (p. 267) and he continued until 1950 (p. 266).

Bayford was born in Barnsley on August 20th, 1865, and was educated at the Market Street Academy, gaining a Locke Scholarship to Barnsley Grammar School in 1875. Instead of being able to follow a bent for mathematics he became an apprentice to the drapery trade. As a boy he collected and reared Lepidoptera but the chance finding of a specimen of the attractive longhorn-beetle *Rhagium bifasciatum* (L.) in 1883 turned his attention to the Coleoptera which remained his lifelong interest. He joined the Barnsley Natural History Society in mid-1883 and was its President for two successive years in 1901 and 1902. For over fifty years he served the Society as its Honorary Librarian. In 1884 he removed to Wakefield, and later, in the course of business, to Bootle, Doncaster and Scarborough, returning finally to Barnsley in 1892. Throughout these years he maintained his entomological interests and on November 16th, 1888, joined the Union, coming to be closely associated with the ' Coleoptera Committee ' subsequently set up, as recorded in his Presidential Address above mentioned. He joined the Entomological (later Royal) Society of London in 1908. In 1933 he succeeded Ben Morley as President of the South-West Yorkshire Entomological Society and became Chairman of the Entomological Section of the Union on J. M. Brown's retirement.

Besides his wide entomological activities, Bayford took a great interest in dialects and was a member of the Council of the Yorkshire Dialect Society from 1920. His excellent library dealing with this subject was acquired by the Leeds City Library a few years ago. In Barnsley he served as a member of the Library Committee for many years and was keenly interested in bibliography, literature on Yorkshire, and local history, on which subjects he had a fine personal library. His knowledge of his native town and its history was unrivalled. He married in 1893 and his dear wife predeceased him in 1956. Their only daughter died in 1944, a bitter blow to them both, but their three sons are all living, and to them and their families we offer our sincere sympathy.

Bayford's collections were acquired by the Birmingham City Museum and his fine entomological library passed into the hands of the present writer. For some of the details of his early life I am indebted to brief autobiographical notes which Mr. Bayford sent me in 1945, in anticipation of this melancholy task, and perhaps I cannot do better than close this notice with his own words. "He had many acquaintances but few real friends, but those he had were so to the end. Most of them he survived and their memory was cherished."

So, too, the few remaining friends cherish his memory and those who were but acquaintances respect the man and his achievements.

W.D.H.

REQUEST FOR INFORMATION

During the latter part of December, 1958, and during early January, 1959, considerable numbers of Waxwings apparently arrived on the east coast of Britain.

I shall be glad if any Y.N.U. members or associates who have seen Waxwings in Yorkshire during this last winter, can send me a note of them, or of any other reliable reports of which they have heard.

Such information as: place, date(s), numbers of Waxwings seen, food taken, duration of stay, etc., would be useful.

R. F. Dickens (*Hon. Sec., Ornithological Section*),
8 Marlborough Gardens, Leeds, 2.

Bardsey Bird and Field Observatory, 1957 Report.

This 44-page booklet includes the Bird and Ringing Reports by R. Arthur (Warden) and Reports by the Hon. Secretary, the Hon. Treasurer, and a paper on ' Freshwater Fauna ' by H. B. N. Hynes. Out of 3,859 birds ringed, ' the Heligolands ' took nearly 2,000, about 850 were taken at the light, and the remainder were Shearwaters and other species mist-netted, and nestlings. Off the Sleyn peninsula, Bardsey is bound to get drifted migrants and *turdidae* (and others) passing to and from Ireland—a Song-Thrush ringed October 15th, 1956, was at Ilkley on May 23rd, 1957. Among the many items useful to compare with Yorkshire records I notice Blue-Tits, *c.* 75, and Coal-Tits, *c.* 120, both on October 8th, 1957. The Hon. Secretary is Mr. W. M. Condry, Eglwysfach, Machynlleth, Montgomeryshire.

R.C.

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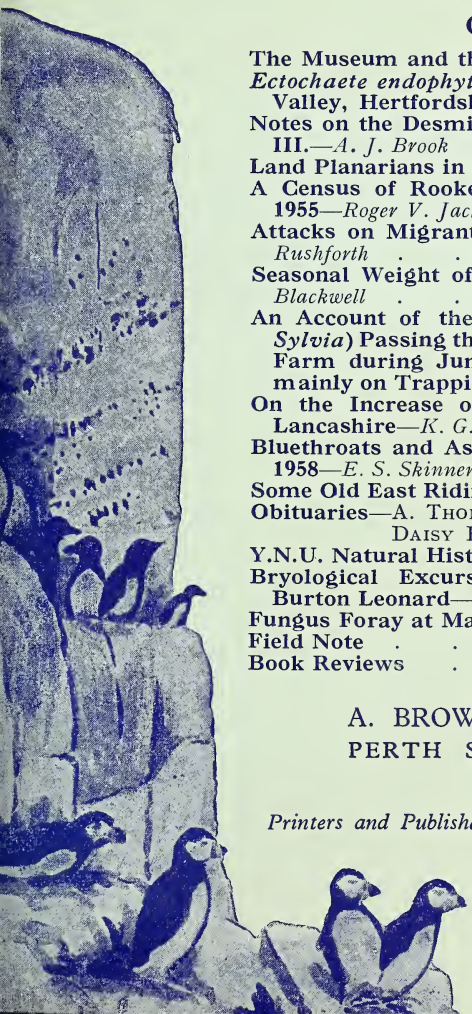

Contents

	PAGE
The Museum and the Naturalist—*A. Hazelwood*	77-80
Ectochaete endophytum (Mobius) Wille in the Lee Valley, Hertfordshire—*J. H. Belcher*	80
Notes on the Desmids of the Genus *Staurastrum* III.—*A. J. Brook*	81-83
Land Planarians in Yorkshire—*E. Thompson*	83-84
A Census of Rookeries within the Leeds Area, 1955—*Roger V. Jackson*	85-90
Attacks on Migrant Passerines by Gulls—*D. A. Rushforth*	91-92
Seasonal Weight of a European Tortoise—*E. M. Blackwell*	92
An Account of the Warblers (*Phylloscopus* and *Sylvia*) Passing through Knaresborough Sewage Farm during June to September, 1958, based mainly on Trapping Figures—*J. R. Mather*	93-94
On the Increase of the Common Gull in East Lancashire—*K. G. Spencer*	95-96
Bluethroats and Associated Species at Spurn in 1958—*E. S. Skinner*	96-98
Some Old East Riding Plant Records—*Ronald Good*	99-100
Obituaries—A. Thompson, B.Sc.	100
Daisy Hilary, B.Sc.	101
Y.N.U. Natural History Exhibition	101
Bryological Excursion to Aketon Marsh and Burton Leonard—*F. E. Branson*	102
Fungus Foray at Malham—*W. G. Bramley*	103-105
Field Note	98
Book Reviews	84, 90, 94, 98, 105-112

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The regulations and application form may be obtained from the Secretary, Natural History Certificate Course, Department of Extra-Mural Studies, University of London, Senate House, London, W.C.1.

YORKSHIRE NATURALISTS' UNION
ORNITHOLOGICAL SECTION

The R.S.P.B. Film, "Highland Birds" will be shown in the **Great Hall, Leeds University,** on Thursday, 24th September, 1959, at 7-15 p.m.
Balcony seats, 3/6. Unreserved, 2/6. Tickets available from the Secretary of the Ornithological Section, and from A. H. B. Lee and D. F. Walker.

The Cleveland Naturalists' Field Club has also arranged for the film to be shown in the **Middlesbrough Little Theatre** on Monday, 12th October, at 7-30 p.m.
Tickets, price 2/6, may be obtained from Mr. B. N. Tinkler, 19 Newham Crescent, Marton, Middlesbrough.

A Special Meeting will be held in the Tolson Memorial Museum, Ravensknowle Park, Huddersfield, at 2-30 p.m. on Saturday, 14th November, 1959.

During the afternoon there will be a series of short papers:

A. H. B. Lee (Leeds) on 'Wader Passage in the West Riding.'
R. Crossley (Huddersfield) on 'Duck Counting in the Huddersfield Area.'
J. R. Mather (Knaresborough) on 'Five Years of Sand Martin Ringing.'
R. V. Jackson (Leeds) on 'Rook/Jackdaw Roosts and Flight Lines.'
J. Cudworth (Ossett) on 'Some Aspects of Spurn's Winter Flocks of Snow Buntings.'

Teas, 3/6 per person, should be ordered via The Director of the Museum, by Wednesday, 11th November.
It is hoped to arrange for a film and/or slides to be shown during the evening.

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Copies of Mr. A. A. Pearson's Papers, Mycena, The Genus Lactarius, and The Genus Inocybe, and second editions of British Boleti and The Genus Russula, price 2/6 each, and Mr. P. D. Orton's Cortinarius Part 1 and 2, price 7/6 each, may be obtained from the Editor of *The Naturalist.*

CORRECTION

Will members please note that the Annual Meeting of the Botanical Section will be held on **Saturday, 3rd October,** as stated on the members' card and **NOT** on 26th September, as stated on the last circular.

THE MUSEUM AND THE NATURALIST

A. HAZELWOOD

Presidential Address to the Yorkshire Naturalists' Union, Bradford, December 6th, 1958.

The only difference I can discern between your President and the ancient Damocles apart from the baked meats and the wine, is that your President knows for a full year the very moment when the sword of necessity will descend upon him in the form of a demand for an address. My predecessors all have had the estimable advantage of an expertise upon which they could draw to deliver themselves of an oration deriving from their great knowledge and their long experience of the subject which they had made their very own. To seek among those of the last half century is to come face to face with some of the major contributions to the Natural History of the County.

Alas, I am no expert. By profession I am a Jack of all Trades and the term's corollary is only too evident. At the same time, this does have its advantages. One can take the broader view.

When, last year, you were gracious and forgiving enough to make me your President I was at first overwhelmed, for the President's Chair was one in which I had never thought to make an impression, and then I was overcome by the terrifying thought 'But whatever shall I talk about?'. It came to me that after spending many years (though I hope by no means a lifetime) acting as go-between for the general and uninformed public—at least before the days of television—on the one hand, and the expert in so many phases of human activity, that it would be most fitting if in fact I talked about my job and tried to review the history of our queer occupation whose scope and purpose seems so little understood even by those whose interests it holds most closely to heart.

We are today, as naturalists, better organised than ever before, much more aware of what the other fellow is doing and able to participate to a much greater extent in co-ordinated activity. Our children have available to them the courses arranged by the Field Study Council and many education authorities are actively assisting by the provision of funds for training courses and study facilities. It is surprising, therefore, that the natural history museum is not, on the whole, participating to an optimum degree and in some towns is even being quietly obliterated by the active pressures of other interests.

It is perhaps a remarkable thing that I should be able to give this address at all, for it is only a very short time ago that the relationship between museums and naturalists was a close and logical one. Almost all the museums in our own county derive from the activities of local societies and had as their bases the collections of local and enthusiastic amateurs.

The local societies still exist, in varying stages of health although with undiminished potential; and, by and large, the museums still exist and some flourish. But with few and hardly notable exceptions their ways are separate, their liaison gone, their purposes and intentions quite uncorrelated.

As President of the Union and as the Curator of a provincial museum, I find a dual anxiety in this state of affairs and would suggest to you that to seek an early return to a state of happy affiliation would not only be to the advantage of both parties but could result in a close parallel to that phenomenon known as 'hybrid vigour', the outcome of a renewed fusion resulting in a timely resurgence of co-ordinated activity and of a sense of purpose which, I think, is to some extent needed by both.

We are this year celebrating the centenary of the publication of what will ever remain a milestone in the errant road of human understanding. *The Origin of Species* was strictly the work of an amateur naturalist and it served not only to liberate a vast field of enquiry and interest in all aspects of natural history, but, and this is its greatest importance, it made of every organism an entity not merely to be classified but to be studied in every detail of its form and function. It is to this end that there began the collection of specimens, adequately prepared, documented and housed and available to every serious student. The completion of the task remains a 'consummation devoutly to be wished'.

All the same, in the second half of the last century, under this great impetus, with the spread of popular education a vast amount of work was done upon which rests, quite squarely, practically the whole of our present knowledge and study. Names such as Porritt, Foggitt, Atkinson and many others remain in our memories and their collections in our museums.

SMITHSONIAN INSTITUTION OCT 9 1959

It was the eventual need for finding a safe resting place for these collections, where they would be cared for and made generally available, that brought so many of our provincial museums into being, first of all as a function of local societies and eventually taken over by the appropriate local authority as an earnest of their considered importance.

It was at this stage that there began that great and unfortunate dichotomy which is my present theme. The naturalist became divorced from the great collections and there arose separate schools of study, one in the museum concerned with form, in particular with reference to classification (that upstart handmaid of natural history which so often puts on the airs and graces of a prima donna) and the other in the field concerned with function, with distribution and behaviour. Instead of regarding their work as entirely complementary, both sides indulged in suspicion and abuse, often in pure obloquy and the phrases 'only a museum naturalist' and 'not a practical man' were hurled across the barriers which have not yet been taken down but which are at last perishing with decay.

One cause of this misunderstanding lies, perhaps, as a consequence of the dual function of all museums. While primarily conservationist in function, caring for the collections of the past and adding to them as best they can, yet in order to justify their sustenance from public funds, it is an important secondary field of endeavour to display those specimens which are popularly acceptable, in arrangements which are increasingly didactic in character.

As a pure service to the community, perhaps the most important thing we can do today is to provide the best possible liaison between the specialist and the informed public of whom he should always be an extension, never a severed unit. It is as well for society that it shall never be completely outstripped by its scientific vanguard and also necessary that the researcher shall be financially supported by a community which is as sympathetically aware as possible of his aims and objects. Although there are certainly other visual aids to this end nowadays, a leisurely regard of the materials and organisms involved has an effect probably more lasting and significant than a televised programme sandwiched however cunningly between the flesh-pots and the dancing girls.

For the active naturalist, of course, this is by way of preaching to the converted and we may have little to offer except to the newly interested person who for a short time can utilise our displays to familiarise himself with the elementary features of whatever study has taken his fancy. For the greater part, however, our prime function, that of the conservation and the development of reference collections, is one with which the practised naturalist can most profitably concern himself.

Practically all museums are understaffed having regard to the material with whose care they are charged and in respect of the wide range of studies with which they are concerned. It is inevitable, if they are to function at all properly that all museum staffs shall be abreast of up-to-date research, especially of a local character, and frequent contact with field workers is the only way in which this can be achieved. This need be no one way traffic for the museum can, and usually does, act as a clearing house through which information can most readily be channelled to where it will do most good. An uncommon organism is just as likely to be discovered by one of the thousands of laymen as by a single expert. It is the museum's job not only to recognise the significance of the specimen, which it will retain, but also to know to whom in the locality the information concerning it will be of the greatest use and to pass it on.

But it is with the existing reference collections that I am most concerned. Most of these are not only in need of skilled maintenance, which the time available will not allow ordinary museum staffs to provide in full measure, but are also treasure houses full of information which is largely unexploited and very often exciting. All our faunal and floral lists from a national down to parochial level are studded with records from the past which are a plague to the modern worker because they can so seldom be confirmed or refuted. Often enough, however, hidden away, the very specimens upon which the records were based are still available. This, when they are located, is not always the end of the matter for specimens as well as records can be fraudulent but it is often easy enough to dispose of fraud by a little patient investigation. Records made in error are now usually self-apparent once the specimen has been located but under up-to-date reappraisal may still be of value in cataloguing past distributions, expansions and declines.

Dr. C. Davies Sherborn in the intervals in his labours of compiling the *Index Animalium* produced a small work entitled ' Where is the —— collection?'. This is useful enough but the point often arises as to 'Where is the —— specimen?' and this cannot often be answered. There is a great need for a survey of the older collections and a careful documentation of their most outstanding contents.

Again, there is the problem of type specimens. There is no doubt that there are many of these still unrecognised in provincial collections and there is still less doubt, unfortunately, that their significance is often completely unknown to the people in whose care they nominally repose. It could hardly be otherwise when a museum with a natural history content may well be in the charge of an art historian or an archaeologist with touch pieces of a different character. It is here again that the friendly intervention of the local enthusiast and specialist can do much to help and bring to light much of importance. Apart from all this, the history of Natural History should always be very much our concern and the greater part of this lies buried, but to hand, in the collections of our predecessors.

It is the vital work of a museum not only to collect but also to collate material and it is from the gaps in its collections and its records, for the two are indivisible, that the earnest worker can discover in which directions his attentions can be most profitably directed. I have recently been asked to review a book entitled ' Unknown Animals'. It deals with those mythical creatures such as the Yeti, the Nandi Bear and similar fodder for the sensational journalist. To me, the real unknown animals are the earthworms of Lancashire and many similar groups of animals, commonplace enough and therefore seldom properly investigated. I can provide any earnest enquirer with a vast array of petrological specimens from the Puy-de-Dôme or of the sea-shells of Mazatlan (I will not say the Mollusca) but if I am asked for specimens of the Myriapoda of the North of England I shall be at a loss, not only to provide them but to suggest any museum which can, and this is a state of affairs which ought not to exist.

One very useful function of the museum in its provision of adequate reference collections is to save wear and tear on those long-suffering people who serve as referees for a particular sub-section of a science. Their time is valuable and should be economically used. Reference to a well-authenticated and attested specimen can very often completely resolve the identity of a doubtful one and thus ease considerably the burden upon the referee and not only reduce the time in which it is possible for him to reply but also to enable him to undertake a duty which is self-imposed with considerably more cheerfulness.

Apart from the deliberate collection of scientific material, the average museum comes, more or less fortuitously, by a considerable amount of material either as a result of public curiosity of from sympathetic naturalists who know that their casual finds will be gratefully received. A properly trained museum staff will not treat such objects merely as acquisitions but will regard them as scientific material of which the most extended possible use should be made. Thus, if we receive a bird which has died as the result of an accident we shall preserve the skin but we shall also record its measurements, in the flesh; we shall investigate and identify its stomach contents, discover the cause of death if this is not already known and we shall collect its ecto- and endo-parasites and forward them for identification to the appropriate expert.

I say we shall preserve the skin. To what end? First to confirm the record, however trivial it may be, for trivial records often assume a greater importance with the passage of time and what was common may well become rare. In the second place it becomes available for taxonomic use by naturalists, amateur or professional, and it is surprising how often a piece of research is held up for lack of specimens of the commonist organisms. In fact, the commoner the species, the less likely it is to be available in numbers in collections for the rarity cult has not passed over the scientific world. Thirdly, when it has been properly compared, it can serve as an extension of the type specimen and be loaned to anyone who has need of it for comparison, illustration or any similar purpose. We are not yet so far advanced that we can go very far without recourse to the actual specimens of the species we are studying and no hypothesis will stand if a sufficient array of material cannot be produced to sustain it. Natural History is not only a pleasant diversion, it is an applied science and the museum is its fundamental reference library.

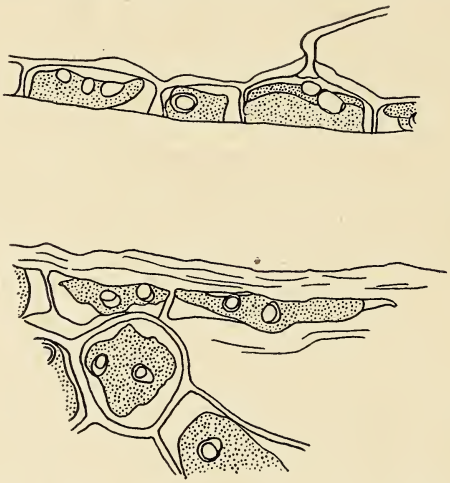
The Museum, then, and the field worker are fully complementary in their functions

and neither can work to optimum capacity without the other. Museums are maintained by the community for the use of its naturalist members. They are not ivory towers but like J. M. Barrie's island, they like to be visited, used, helped and sustained. If you do not do it you are likely to lose them.

ECTOCHAETE ENDOPHYTUM (MOBIUS) WILLE IN THE LEE VALLEY, HERTFORDSHIRE

J. H. BELCHER,
(*University College, London*)

In August, 1956, a green filamentous alga which agreed with the description of *Ectochaete endophytum* (Möbius) Wille (Huber, 1892) (*Endoderma endophytum*



Above: Part of an *Ectochaete* filament on a cell wall of *Cladophora*.
Below: Filaments of *Ectochaete* creeping between the layers of an old *Cladophora* cell wall.

Both × 780.

(Möbius) Huber) was found as an abundant epiphyte on *Cladophora* in a gravel pit at Cheshunt, Hertfordshire, in the Lee Valley (National Grid Reference TL 369024).

The filaments crept over the surface of the *Cladophora* cells or penetrated between the layers of the cell wall, branching irregularly. The *Ectochaete* cells were very variable in size and shape, reaching a length of 50μ and a breadth of 25μ. Some cells bore a delicate hair up to 500μ long and about 2μ wide. There was one parietal chloroplast per cell and up to three pyrenoids.

The presence of several pyrenoids per cell distinguishes it from *Endoderma cladophorae* Hornby, which has only one (Hornby, 1918). The two genera *Ectochaete* and *Endoderma* are separated by the absence of hairs in the latter, but the difference is not consistent in these two species, since Waern (1952) found material resembling *Endoderma cladophorae* in the Baltic, but bearing sparse, extremely fine bristles.

Although *E. cladophorae* was described from Britain there has apparently been no previous report of *Ectochaete endophytum* in this country.

I wish to thank Dr. J. W. G. Lund for his advice.

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NOTES ON DESMIDS OF THE GENUS *STAURASTRUM*

III. *STAURASTRUM PARADOXUM* MEYEN IN THE JENNER HERBARIUM OF THE BRITISH MUSEUM

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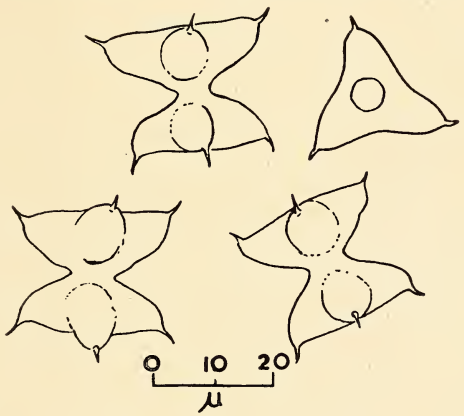
In an attempt to determine the identity of the desmid referred to as *S. paradoxum* Meyen by Ralfs in his monograph, *British Desmidieae* (1848), the mica from a packet in the Jenner Herbarium of the British Museum has been examined. It is labelled in the following way:

Staurastrum paradoxum
Staurastrum mucronatum
Penzance.

Mr. R. Ross, Keeper of the Cryptogamic Herbarium of the Museum, has commented that this is almost certainly part of the material examined by Ralfs when preparing his monograph.

The material on the mica would seem to be a squeezing or scraping from plants collected from a ditch or the margin of a pond and contains a considerable amount



Staurodesmus dejectus (Ralfs) Teiling

of silt and detritus. Attached diatoms are fairly common (e.g. *Eunotia* spp., *Epithemia* spp., *Tabellaria* spp., etc.) and three desmids are very frequent. These are *Euastrum binale*, a very small *Staurastrum* and *Staurodesmus dejectus* (Breb.) Teiling (=*Staurastrum dejectum* Breb.). No monospinous desmid with 'segments elliptic, awns parallel' and which can be referred to *S. mucronatum* have been seen, *S. dejectus* being the only species of this group present (Fig. 1). Also on the mica in smaller amounts is *Staurastrum teliferum* and a few semicells which agree quite well with Ralfs' *S. polymorphum* (see Fig. 2e).

The very small *Staurastrum* (fig. 2a-d, f-k) would clearly seem to be the desmid referred to on the packet as *S. paradoxum*, for it has at least a superficial resemblance to the figures which are named as this species by Ralfs (1848, Tab. XXIII, fig. 8a-f). In the latter, however, the processes are much longer and the denticulate ornamentation on them is much more prominent than in the specimens on the mica. The sides of the semi-cell in apical view are straight or convex in the monograph figures, whereas in the herbarium material they are invariably markedly concave. Another significant difference is that in the Ralfs' figures the ventral margins of the semi-cell body are smoothly rounded (obsemicircular to subcyathiform), whereas in the plants on the mica they appear angular due to the presence of a granule, the last of a series, extending on to the semi-cell body from the ventral side of each of the processes (see Fig. 2a and e). Indeed the figures in Ralfs' monograph are very similar to certain planktonic forms of *S. anatinum* in which the body ornament is

very greatly reduced. On the other hand, the desmids on the herbarium mica are without doubt identical with the small *Staurastrum* which West named *S. micron* (West and West, 1896). The dimensions quoted by Ralfs for his *S. paradoxum* are

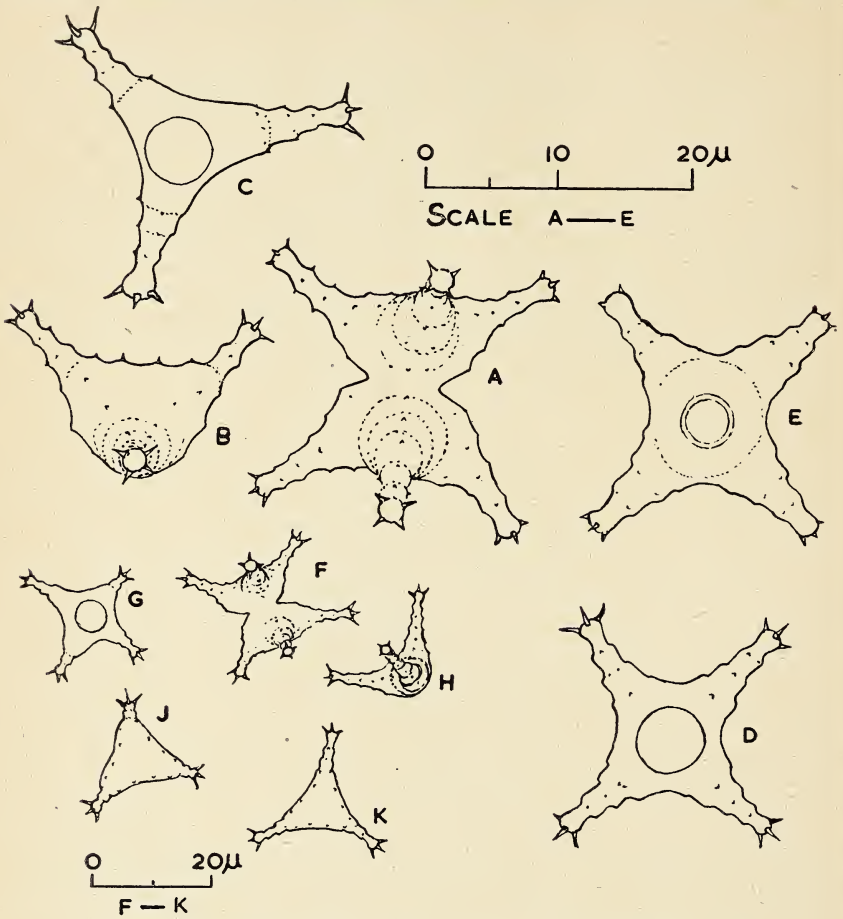


Fig. 2. A—D, F—K, *Staurastrum micron* West 2 E, *S. polymorphum* Breb.

also considerably greater than those of the herbarium material as shown in the following table.

Ralfs *S. paradoxum* 1848, p. 138 (Dimensions quoted originally as fractions of in).		Jenner Herbarium Material		*S. micron* (West and Carter 1923, p. 123)
'l. of frond'	27·9μ			
		l. sin. pro.	12–15μ	8·5–11·5μ
		l. cum pro.	20–22μ	12·0–17·5μ
'br. of frond'	21·8μ	br. sin. pro.	8–9·5μ	7·0–9·5μ
		br. cum pro	20–23·0μ	12·5–19·0μ
br. isthmus	8·7μ		5.5–6.5μ	3·0–3·5μ
l. processes	18·6–20·2μ		5.0–8·0μ	(5·5–10·5μ) estimated

Since the length of the processes quoted by Ralfs for *S. paradoxum* is between 18·6 and 20·2μ, it would therefore seem reasonable to assume that the total breadth

of the plants depicted in his monograph must have been in the region of 50μ or more, and thus very much larger than *S. micron*. This large size is further evidence in support of the contention that the figures in Ralfs are of a form of *S. anatinum*.

In attempting to find some reason for these discrepancies, it must be admitted that the first impression gained by comparing the general shape and disposition of the processes in the Ralfs' monograph figures with the present drawings (Fig. 2) made from the Jenner Herbarium material is of some measure of similarity. Moreover, another possibly misleading feature is the fact that both triangular and quadrangular individuals have been present in the sample on the mica and both forms are of course depicted in Ralfs' monograph. Thus it must be assumed that Ralfs only looked at this particular material in a cursory manner (see also comments above about *Staurodesmus* (*Staurastrum*) *mucronatus* stated to be on this mica) and unless we are prepared to admit that all of Jenner's drawings and measurements in Ralfs' monograph are much less accurate than is generally supposed (which is not really warranted on other evidence), it can only be assumed that the drawings of *S. paradoxum* in this work were not made from the material now in the British Museum. This anomaly, however, in no way assists in the solution of the problem concerning the identity of *S. paradoxum*. It only seems to provide an additional reason for the adoption of the suggestion that this species should now be abandoned.

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LAND PLANARIANS IN YORKSHIRE

E. THOMPSON

FRESHWATER flatworms are common in the streams and ponds of Yorkshire, several species having been observed and studied by various writers. On the other hand the marine (see *The Natural History of the Scarborough District*, **2**, 22, 1957) and terrestrial forms have remained almost unknown in our Yorkshire fauna. In habits the land planarians are retiring and if found are seldom recognised. Perhaps this explains their apparent rarity.

Bearing this in mind, the writer was delighted to find a colony of these animals near the village of Fairburn during the late summer of 1957. They were numerous and living beneath stones littered along each side of an old limestone wall. During December none were to be found, but they were present again in March 1958 in small numbers, when with the help of Professor E. A. Spaul and Dr. J. B. Jennings more were collected. Later, on May 13th, Dr. Jennings visited the site and uncovered four more planarians. Meantime they were discovered in April at Malham in two localities on mountain limestone during a faunistic survey, whilst other specimens were found near Settle in May, and also near the hamlet of Gunthwaite on the coal measures. In November two more were found in the copse beside Malham Tarn House, and three under loose limestone debris at Janet's Foss, Gordale. The writer is not familiar with the Malham stations, but the site at Gunthwaite is against an old wall. Here the masonry is very damp and covered with mosses; fallen stones are few, and the planarians live amongst the low vegetation.

On two occasions the writer found the flatworms moving through the grass but still in the vicinity of the wall, and it would appear that they are active in this way most of the time. Captured specimens are usually very active. When moving over stones the planarians leave a slime trail similar to that of a snail. Though this mucus no doubt aids locomotion it may also trap small animals for food. Planarians are carnivorous and it may be that these terrestrial forms can feed on small earthworms and slugs.

The original site at Fairburn is in open pasture land, but another colony exists half a mile away, again around the base of an old wall, but enclosing woodland.

In all these areas the land planarians examined have been identified as *Orthodemus terrestris* (O. F. Müller) previously known as *Rhynchodemus terrestris* (Graff). Percival (1925) stated that *R. terrestris* is common in England and Ireland but did not say that it had been found in Yorkshire. However, he described a new species, *R. britannicus*, found in Yorkshire under large stones and logs which have remained

undisturbed for some time on moist clay or loam. It is evidently quite distinct from *O. terrestris*, having a greater length and differing in colour and other features, but there is some similarity with other land planarians although the lack of detail in the account prevents definite identification. This species was reported again in 1933 by Eastham in the Sheffield area. The only other record of land planarians in Yorkshire appears to be an anonymous report of *Bipalium kervense* (probably *kewense*) from a greenhouse at Wakefield in 1905, noted in *The Naturalist* (1905, p. 320). Pantin (1944) reported the presence of *Rhynchodemus terrestris* in South Devon under stones and wood in damp places associated sometimes with *R. sylvaticus* (Leidy), from which it could be clearly distinguished, Hyman (1954), discussing the nomenclature of land planarians, allocates *R. terrestris* to a new genus *Orthodemus*, in the subfamily *Microplaninae* Pantin, and *Rhynchodemus sylvaticus* to the genus *Rhynchodemus* Leidy in the subfamily *Rhynchodeminae* Correa. There is no reference to *R. britannicus* in this discussion.

It seems that temperate countries have few terrestrial species, but in the tropics there are several which often reach a large size and are brilliantly coloured. In Australia alone about fifty species occur. *Orthodemus terrestris* belongs to a widespread group with members in North America, Ceylon and also in Australia.

When at rest our Yorkshire specimens measure less than an inch, but they are capable of greater extension. This is accomplished in a motion similar to that of a leech. They have also a gliding movement, as muscular waves pass back down the ventral, ciliated, muscular, creeping sole. Dull green, grey, or even deep black are the most usual colours, with off-white underparts, and only a single pair of eyes is present.

O. terrestris is probably an old member of our Yorkshire invertebrate fauna, and one wonders how this animal has remained undetected for so long. The three areas of our county where this flatworm has been reported are wide apart, and no doubt further search will reveal more.

In conclusion, I wish to thank Professor E. A. Spaul and Dr. J. B. Jennings for their kind help and interest, and the records from the Malham area, also W. Wakefield who reported at times on the Fairburn colonies, and B. Wakefield for the Gunthwaite specimens. I am also grateful to Mr. S. Prudhoe of the British Museum for the identification of the first captured specimen.

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Garden Ponds, Fish and Fountains, by **A. Laurence Wells.** Pp. 192, with 12 plates. Warne, London, 1959. 7/6.

This is a new edition of a work which first appeared in 1937. It is a simple and comprehensive guide for the would-be aquarist and pond owner and, apart from some stimulating photographs of pond design, might well have been written a century ago. This is not a criticism of the author, though the chapter on fish ailments could be revised with profit, as much as a reflection of the limitations imposed on the cold-water aquarist by our chancy climate. Mr. Wells is particularly wise in stressing that it is not enough to plan and make a pond. It is necessary to maintain it with as much skill and knowledge as is brought to the successful terrestrial garden.

E.H.

A CENSUS OF ROOKERIES WITHIN THE LEEDS AREA, 1955

ROGER V. JACKSON

Summary

1. A census of the rookeries within a 15-mile radius of Leeds (an area of 707 square miles) showed a total of 14,316 breeding pairs in 222 rookeries—an average of 20·25 pairs per square mile.
2. Comparison with figures obtained during the 1945 Rookery Census shows an increase in the breeding population of 2·20 pairs per square mile over the given area.
3. The breeding density is slightly above that for the whole country, given in the *Handbook of British Birds* (1946) as 16 pairs per square mile.
4. The majority of rookeries within the area are located between 250 and 400 feet above sea level.
5. The industrial and housing development of the city has had no detrimental effect upon the increase in the population of rookeries within the city boundary.

Introduction

During the first three weeks of April, 1955, the Leeds and District Bird Watchers' Club held a census of the rookeries to be found within a 15-mile radius of Leeds city centre. The object of the census was to determine the fluctuation in the population of the Rook (*Corvus frugilegus*) within the area. Information regarding the rookeries in the area, which were counted in the 1945 National Census, was kindly supplied by Mr. James Fisher through the British Trust for Ornithology, to whom I am most indebted. This information showed where all the existing rookeries could be located, and also gave figures for comparison with those recorded by the 1955 census.

From previous experience it was found that the most accurate figures could be obtained during the first three weeks of April. During this time the majority of breeding pairs in a colony are either sitting eggs or feeding newly hatched young.

A pilot census of ten chosen rookeries within the area was undertaken in the spring of 1954, and from the results obtained from these records it was found that there had been a slight increase of breeding pairs in all the ten colonies. These results prompted a full-scale investigation into the number of colonies and breeding pairs within a given area. A circle with radius 15 miles was drawn around the city of Leeds, with the Town Hall as a centre. This circle had an area of 707 square miles, and from this basis it was hoped that breeding density could be calculated.

From the 1945 figures the given area had a density of 18·05 pairs per square mile which is slightly more than that of the whole country which is 16 pairs per square mile (*Handbook of British Birds*, 1946). This density also compares with a count in 575 square miles of the eastern part of the North Riding of Yorkshire recorded in 1945, when C. E. A. Burnham estimated 205 colonies to contain 10,000 breeding pairs, a breeding density of 17·5 breeding pairs per square mile.

It is also interesting to compare with a similiar count in 1945, recorded over 65 square miles around Bolton Percy, south west of York. In this area W. G. Bramley counted 3,001 nests giving a breeding density of 46·0 pairs per square mile (Chislett, 1952).

Distribution

The area covered by this census was a circle drawn around Leeds with a 15-mile radius from the Town Hall. For the purpose of assessing distribution this circle was divided into three sub-areas thus:

Area A: The area within a 5-mile radius of the city centre. This is the most densely *human* populated area and is within the city boundary.

Area B: The area between 5- and 10-miles radii of the city centre. This area is suburban, bordering on to agricultural land.

Area C: The area between the 10- and 15-mile radii of the city centre. This is mostly developed agricultural land with a few small towns and villages.

The distribution of rookeries within these three sub-areas is as follows:

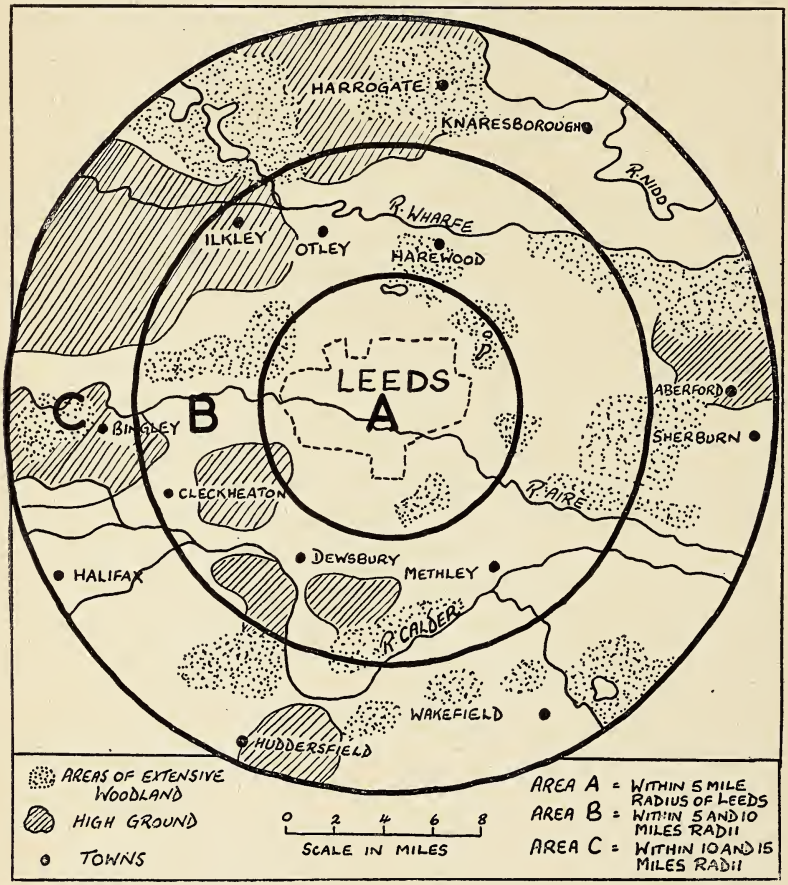
Area A—The Industrial Area.

In this area there were 15 rookeries recorded in 1945. These 15 colonies contained 1,000 breeding pairs or 7·8% of the total for the whole area. During 1955 these 15

rookeries contained 1,377 breeding pairs or 9·5% of the total for the whole area. There were no new rookeries located in this area in 1955 and no destroyed colonies. The increase in this area was 377 breeding pairs or 1·7% of the total for the whole area.

Area B—The Suburban Area.

All the new rookeries (*i.e.* those located in 1955 that had not been previously recorded in 1945) were found within this area. 46·5% of the total breeding pairs for



the whole area were found within this area in 1955. This was slightly more than the percentage of 44·5% of the grand total which were located in the 1945 census. There was an increase of 1,054 breeding pairs in this area over the 1945 total for the area.

Area C—The Agricultural Area.

In this area there were 43·8% of the breeding pairs for the total area during 1955. Although this percentage was considerably lower than the 1945 figure of 48·2% of breeding pairs for the whole area, there was an increase of 122 breeding pairs within the area, over the 1945 figures.

From the above figures we see that the majority of rookeries are located within the suburban and agricultural areas bordering the city. It is interesting to note that the largest increase of breeding pairs has occurred within the suburban area.

Breeding Density

From the figures obtained during the 1945 National Rookery Census it was found that there were 237 rookeries containing 12,763 breeding pairs within the area. That is to say, an average of 18·5 breeding pairs per square mile. This is slightly more than the average for the whole of Britain given as 16 (*Handbook of British Birds*, 1946). It should be remembered that the whole country will include much larger areas of tree-less moorland and mountain than does the 15-miles radius from Leeds Town Hall. The census held in 1955 showed that there were 222 rookeries containing 14,316 breeding pairs within the same area. There has been an increase therefore of 1,553 breeding pairs or an average increase of 2·20 breeding pairs per square mile. From these figures it will be seen that although the number of breeding pairs (or nests) in the area has increased, the total number of rookeries has decreased by 15. The majority of these ' destroyed ' rookeries have been the result of forest clearing and tree felling. Nearby rookeries, that show a marked increase in population in 1955, will undoubtedly have accommodated the inhabitants of these destroyed colonies.

To obtain a more accurate picture of the breeding density for the area we again divide the area up into three sub-areas:

Area A—The Industrial Area.

In this area there are 15 rookeries, 6 of which contain over 100 breeding pairs. The largest rookery within the area is located at Cookridge Hall (257 pairs in 1955; 85 pairs in 1945) which is $4\frac{3}{4}$ miles from Leeds Town Hall. The nearest rookery to the Town Hall is located at Harrogate Road, Chapeltown, which is a distance of $2\frac{1}{2}$ miles from the city centre. In 1955 this rookery contained 27 nests against a total of 22 in 1945. During 1955 the 15 rookeries within this area contained 1,377 breeding pairs or 9·5% of the whole total. This shows a breeding density of 17·5 pairs per square mile for the area. From the 1945 figures we had the same 15 rookeries containing 1,000 breeding pairs or 7·8% of the total breeding pairs for the whole area. This gave a breeding density of 12·7 pairs per square mile. These figures show an increase of 377 breeding pairs within the area. The increase in breeding density is 4·8 pairs per square mile. Although there has been much factory and housing development within this city area it is interesting to note that no rookeries have been destroyed, and that there has indeed been an increase in breeding pairs.

Area B—The Suburban Area.

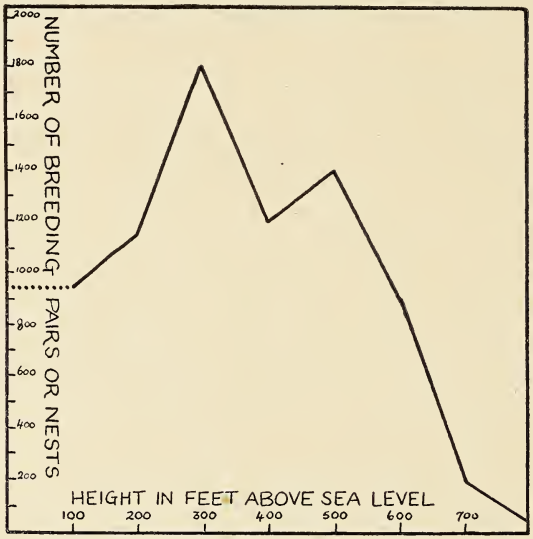
In this area there are 132 rookeries, 21 of which contain over 100 breeding pairs. The largest rookery is located at Kirkby Overblow (365 pairs in 1955; 57 pairs in 1945) which is just 10 miles from the city centre. During 1955 all the new rookeries (13 in number) were located in this area, and 6 rookeries (counted in 1945) could not be found. In 1955 these 132 rookeries contained 6,669 breeding pairs or 46·5% of the total for the whole area. This gives a breeding density of 28·2 pairs per square mile for the area. From the 1945 figures there were 123 rookeries containing 5,615 breeding pairs within the area, this being 44·5% of the total breeding pairs for the whole area. The 1945 figures show a breeding density of 23·8 pairs per square mile for the area. These figures show that there has been an increase of 1,054 breeding pairs within the area, and an increase in breeding density of 4·4 pairs per square mile for the area. Of those rookeries counted in 1945 that could not be located in the 1955 census, 5 were lost by forest clearing and tree felling, and one was deserted through unknown causes. Nearby rookeries to these ' lost ' colonies show a marked increase in population, and have undoubtedly accommodated the inhabitants of these destoyed rookeries.

Area C—The Agricultural Area.

During the 1955 census this area contained 103 rookeries which comprised 6,270 breeding pairs or 43·8% of the total for the whole area. This shows a breeding density of 15·9 pairs per square mile. The census for 1945 showed there to be a total of 6,148 breeding pairs in the same area, and in the same number of rookeries, this being 48·2% of the total number of breeding pairs for the whole area. From these figures we find that there has been an increase of 122 breeding pairs within the area showing an increase in breeding density of 0·3 pairs per square mile. Out of the 103 rookeries within this area there were 13 containing 100 breeding pairs or over recorded in the 1955 census. The largest rookery within the area being located at Healaugh near Tadcaster (this rookery contained 515 nests in 1945 and was not counted in 1955).

A summary of the figures for these three areas shows that in every area there has been an increase of breeding pairs of rooks. We find that the largest increase occurred in Area "B", the suburban area bordering on to agricultural land. We will, therefore, examine this area more closely regarding contour and type of land.

Within Area ' B ' the land varies in height above sea-level, from Swillington Park (50 feet above sea-level) to the Beacon on Otley Chevin (850 feet above sea-level). The effect of altitude upon the building of rookeries is discussed later. Within this area lie the towns of Wakefield and Otley, and the eastern half of Bradford. Otherwise there are no large towns. The valleys of the rivers Wharfe, Aire and Calder run through the area from west to east, and the Aire and Calder Canal is also included within the area. There are three large estates (which include much woodland) within the area, namely, Harewood Park, Farnley Park and Swillington Park. Besides these stretches of woodland there are some 170 small woods and copses.



This area has more woodland than either Area ' C ' or the industrial Area 'A', and is therefore more suitable for the formation of rookeries.

It is also interesting to note that, despite much housing and factory development, the rook population in Area 'A', the industrial area, is holding its own, and indeed increasing. The rate of increase has been 37·7 breeding pairs per year for the area.

The *Handbook of British Birds* (Witherby, 1946) states the distribution of the Rook as follows: ' British Isles: Resident. Generally distributed where trees exist. Extensive data on density of population shews an average of about 16 nests (or 32 breeding birds) per square mile with variation, in the case of areas over 100 square miles. On smaller areas recorded variation is from 1 nest (Harrow, 1929—50 square miles) to as high as 60 (Greater Edinburgh, 1935—51 square miles) per square mile.

The population of the Rook within the Leeds area (707 square miles) had a breeding density of 18·05 nests (36·1 breeding birds) per square mile in 1945, and in 1955 a breeding density of 20·25 nests (40·50 breeding birds) per square mile.

Influence of Altitude upon Rookeries

The *Handbook of British Birds* (Witherby, 1946) states that in England the main concentration of rookeries is below 400 feet above sea-level, but where cultivation provides suitable conditions the Rook breeds up to 1,000 feet and over.

The city of Leeds itself lies on land between 175 feet above sea-level and 450 feet above sea-level. The countryside around the city and within the 15-mile radius of Leeds is varied in contour, ranging from Swillington Park (50 feet above sea-level) to Thimble Stones, on Ilkley Moor (1,321 feet above sea-level). The altitude of all

rookeries counted during the 1955 census was recorded and from these figures a Graph (Figure 2) was compiled.

By far the largest number of rookeries and breeding pairs are found at or around 300 feet above sea-level, and 64% of the breeding birds within the area nest below 400 feet above sea-level. The lowest rookery in the area being located at Knostrop by the River Aire (80 feet above sea-level). This rookery contained 17 breeding pairs in 1945 and the same number in 1955. From the graph we see that 6·5% of breeding pairs within the area nest at or below 200 feet above sea-level. Around or below 300 feet above sea-level there were 28·5% of the breeding birds in the area and 21·0% at or below 400 feet above sea-level. From these figures we see that 64% of the breeding birds in the area nest at or below 400 feet above sea-level.

The remaining 36% of the breeding Rooks within the area therefore nest in rookeries situated above 400 feet above sea-level. We find that 23·5% of the breeding birds in the whole area nest between 400 and 500 feet above sea-level, 9·5% nest at or below 600 feet above sea-level and the remaining 3% nest above 600 feet above sea-level. The highest rookery in the area is situated near Eldwick Crag, on Bingley Moor (875 feet above sea-level). This rookery had 13 nests counted in 1945, and 17 recorded in 1955.

A census of rookeries in the Bradford area (also included in the Leeds census) held in 1953 (Nelson, 1954), showed that the average was around 590 feet above sea-level, but this is probably more a reflection of the hilly nature of Bradford than a choice of the Rooks. The area of this Bradford census was 39·35 square miles.

New Rookeries in the Area Compared with Destroyed Colonies

During 1955, 13 new rookeries were located that had not been recorded in 1945, and 28 rookeries counted in 1945 could not be found in 1955. The 13 new rookeries contained 469 breeding pairs or 3·2% of the total breeding pairs for the area in 1955. The 28 destroyed colonies contained 676 breeding pairs or 5·5% of the total breeding pairs for the area in 1945.

It is interesting to note that all the new rookeries were located in the suburban area (Area ' B '—sub-para. 3), the area between the 5- and 10-mile radii of Leeds city centre. It is also interesting to find that although 2 of the new rookeries can undoubtedly be associated with 2 of those rookeries recorded in 1945 that could not be located in 1955, the remaining 11 could not. These 11 rookeries appear to have been formed by an overflow of Rooks from nearby existing rookeries. This poses the interesting question—when does a rookery become too small to accommodate increasing breeding pairs? and also what prompts Rooks to leave an existing rookery and commence to build a new colony ? Although much intensive study has been applied to this species still more is to be done.

Rookeries near to the destroyed colonies showed a marked increase in the 1955 census, and these undoubtedly accommodated the former inhabitants of these lost colonies. The average height of the ' lost ' rookeries was 390 feet above sea-level, that of the new colonies being 200 feet above sea-level. From the altitude graph, we see that the new rookeries are built lower than the average colony in the area, and the destroyed rookeries were built slightly above the average height.

The Effect of a City upon Rookeries

For the purposes of calculating breeding density and distribution, the area covered by this census was sub-divided into three. We are now going to examine Area 'A', the industrial area, and its effect upon the breeding Rook.

The total area covered is that within the 5-mile radius of Leeds Town Hall, covering 78·5 square miles. The city of Leeds itself covers an area of 60 square miles with an area of 38,593 acres. Not by any means is the whole of this area under bricks and mortar, for Leeds has no fewer than 167 parks and open spaces covering an area of 4,855 acres, or 7·8 square miles. The two largest parks in the area being at Templenewsam (935 acres) and Roundhay (629 acres). Leeds is built on the banks of the River Aire, and being the fifth largest city in England, has a population of half a million people. Let us now examine the effect of this growing city upon the Rook population within the area.

In 1945 there were 15 rookeries in the area accommodating 1,000 breeding pairs, this has increased steadily year by year until in 1955 the same 15 rookeries accommodated 1,377 breeding pairs, there being an increase in all but 5 of the rookeries.

These figures show an increase of 4·8 breeding pairs per square mile over the last ten years. There has, therefore, been an average increase of 37·7 breeding pairs per year within the area.

Post-war building schemes have been completed and many new housing estates have been started on the outskirts of the city. Although there are many parks and open spaces, these are being engulfed by projected housing schemes and factory development. Despite this increase in building, and the decrease in woodland and open spaces, the Rooks in the area are holding their own, and indeed showing an increase over the last ten years.

In 1954 there was an instance of a pair of Rooks attempting to build a nest in a chimney pot on a house near an existing rookery at Chapeltown, just two miles from Leeds city centre, and this can be compared with a record of a similar occurrence at Rotherham in 1917 (Chislett, 1952). These are only single records and do not appear to be a very widespread habit.

It can be stated therefore that the spread of housing within the city has had no detrimental effect upon the breeding Rooks in the area, and in fact they have shown an increase over the last ten years.

Acknowledgements

The information regarding the 1945 National Rookery Census was supplied by Mr. James Fisher through the British Trust for Ornithology, to whom I am most indebted. I would also like to thank John Cudworth and Tony Lee for their assistance in the compiling of this paper and for their very valuable field work, without which this paper would never have been completed.

Contributors

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Practical Animal Ecology by **W. H. Dowdeswell.** Pp. 316 with 16 plates, 86 line drawings and 21 tables. Methuen, 32/6.

In recent years field work has come to play an increasing part in biological studies, both at the VIth form and student level. The publication of this book comes therefore at a very opportune moment. The emphasis throughout is upon the word 'practical' and although the chapter dealing with sea shores leaves much to be desired the rest of the book is written with authority, experience and great enthusiasm for the subject.

Methods of measuring the physical factors of the terrestrial and freshwater habitats are explained fully and simply, and there are many suggestions for improvising apparatus. Collecting, trapping and marking equipment and methods are described and there is an adequate introduction to quantitative ecology and statistical methods. Soil communities, terrestrial, freshwater, and marine habitats are considered in turn, showing the principal types of animal life and their special adaptations, and how their distribution both in space and time is influenced by physical and biotic factors. These chapters contain examples of and suggestions for ecological investigations involving both simple and complex environments. While some of the latter may be difficult to fit into a school time-table the book as a whole should be a great help and stimulus to biology teachers, and as such is warmly recommended.

J.R.L.

ATTACKS ON MIGRANT PASSERINES BY GULLS

D. A. RUSHFORTH

While recording numbers of migrant birds coming in off the sea at Spurn on October 19th, 1958, A. Archer, R. F. Dickens and the writer witnessed two incidents involving attacks on Starlings (*Sturnis vulgaris*) by gulls. In the first incident it was to a single bird approaching low over the sea, that our attention was attracted. The Starling was first observed some three hundred yards away as it laboriously flapped its wings and glided in a last effort to reach land. In pursuit of the Starling were five Common Gulls (*Larus canus*) which eventually overtook and forced it down onto the sea some 200 yards short of the shore. As the Starling sat on the water the Common Gulls made no attempt to harry it, but merely sat around it. After a two minute interval the Starling flew from the water but was almost immediately forced down onto the surface again by the Common Gulls and an immature Greater Black-backed Gull (*L. marinus*) which had joined the party. The greater Black-backed Gull, while on the wing, was then observed to pick the Starling from the water and carry it for a short distance, before the struggling bird wriggled from its grasp and flew for a few yards before again dropping to the water. The Starling by this time was thoroughly saturated and it's frantic attempts to leave the water again were unsuccessful. Meanwhile the five Common Gulls circled their victim again as it slowly drowned. When its struggles ceased the gulls took no further interest, and flew off leaving the body to drift with the tide.

Later a Starling was observed being pursued by five Greater Black-backed Gulls as it flew parallel to the shore. The Starling made no effort to turn in towards land although only some 50 yards out, and was seen later by J. Cudworth a mile farther south still dodging the gulls but making no attempt to reach the cover of the dunes. Its fate is unknown.

On the same day J. Cudworth, C. Winn, H. O. Bunce, R. C. Parkinson and P. J. Stead, who were counting migrants further south, also saw attacks by gulls on Starlings, one of which was seen being pursued by three adult Common Gulls. After several swoops by one or other of the gulls the Starling was eventually knocked into the water. Twice the unfortunate bird was picked from the sea by one of the gulls and dropped again. Meanwhile two Great Black-backed Gulls and a fourth Common Gull had joined the party and all sat around the Starling on the sea. After two minutes rest the Searling took off from the sea and flew towards land, pursued by one Greater Black-backed Gull and four Common Gulls. Safety was offered to the tired bird by a breakwater, for upon the Starling reaching it, the gulls departed leaving the bird to regain sufficient strength to reach the cover offered by the buckthorn bushes.

Another obviously exhausted Starling alighted on the sea some two hundred yards out, rested for two minutes and then took off again, avoiding the challenge of a Common Gull to make the post of a nearby breakwater and then land.

Later the same week on the October 21st, R. F. Dickens and the writer observed a further attack by four Common Gulls on a lone Starling. The victim was forced into the water by the gulls which then sat close at hand while the Starling was on the water. After resting for about three minutes the Starling flew from the sea only to be forced down again by the Common Gulls. Other attempts to leave the sea were dealt with in the same manner. After about ten minutes, when the Starling had apparently drowned, the Common Gulls left the scene, taking no further interest.

Such behaviour does not appear to have been very frequently recorded. R. F. Dickens in *The Naturalist* 1955, p. 155-159 records Common Gulls attacking Redwing (*Turdus musicus*) and Blackbirds (*T. merula*) at Spurn and J. Cudworth informs me of an incident he witnessed on November 3rd, 1957, when an immature Greater Black-backed Gull was seen to catch a Blackbird in mid-air. The Blackbird struggled from the grip of the gull and flew for about ten yards, before alighting on the sea. After a minutes rest it took off from the sea and flew towards shore alighting on the sea again a few yards short of the dunes. A second Greater Black-backed Gull seeing the plight of the Blackbird picked it up from the water and flew off with it. The fate of the Blackbird is unknown since the birds were lost to the observer's view.

It is noteworthy that all attacks by the gulls were made on single birds. Falcons however, have been known to stoop at and take outlying birds in a flock. On October 19th, 1958, it was evident that single birds, and small groups of up to six flew less strongly than larger flocks. Although not proven it is probable that the single birds had relinquished the value of travelling in a flock because towards the

end of their journeys they found it difficult to maintain the pace set by the stronger birds, despite any advantage derived from inclusion in the formation.

Another feature difficult to explain is the motive of the gulls in attacking these birds. In two cases where close enough observations could be made, the gulls did not feed on the victims as one would have expected, but lost all interest once the birds were dead.

It may surprise some ornithologists, as indeed it did the observers, that Starlings and Blackbirds could settle on the sea and remain there for a period of up to three minutes and still be capable of taking off and flying, even if only for a short distance.

Seasonal Weight of a European Tortoise

I wonder if there are many private records of the weight of a tortoise year by year. For the last seven years Mr. Edgar Lunn of Huddersfield has weighed his tortoise just before it withdrew to its turfed hide-out in the garden for the winter, and again as soon as it emerged in the spring. His record is given below. It not only draws attention to the light weight of tortoises, for this one is large and perhaps half a century old, but it reminds us of the difference between dormancy, with its suspended animation, and sleep where metabolism proceeds normally and one awakes hungry. This tortoise is not particularly hungry on resuming activity, and has to be coaxed to eat with petals of the creeping buttercup. It is a good systematist and spots others species of buttercup at once as inferior, possibly more acrid. It died of old age in April 1959.

THE RECORD

				lb.	*oz.*	*Loss of weight in hibernation*	*Summer gain*
1951	Oct.	30	Last day out	5	6		
1952	Mar.	8	Out again	5	6	nil	
	Aug.		... ...	5	8		2 oz.
1953	Mar.	18	Out again	5	7	1 oz.	
	Oct.	25	Last day out (except for Dec. 12, a warm day)	5	7		nil
1954	April	7	Out again	5	7	nil	
	May	16	First day eating	—			
	Aug.	1	... ...	5	10		
	Sept.	30	... ...	5	8		1 oz.
1955	April	5	Out again...	5	7		1 oz.
	Oct.		... ...	5	8		
	Nov.	16	Last day out	5	6		1 oz. *loss*
1956	April	3	Out again	5	6	nil	
	Sept.		... ...	5	4		
	Nov.	18	Last day out (except for Dec. 6-10, a warm spell)	5	5		1 oz. *loss*
1957	Mar.	11	Out again	5	5	nil	
	June	1	First day eating	4	10		
	June	13	Eating normally	—			
	June	15	... ...	4	12		
	July	11	... ...	5	5		
	July	15	... ...	5	8		
	Aug.	15	... ...	5	10		2 oz.
	Nov.	15	Last day out	5	7		
1958	April	13	Out again	5	10	3 oz. *gain*	
	May	3	... ...	5	0		
	May	27	First day eating (meat)	4	13		
	June	2	Second day eating (buttercup) ...	—			
	July	15	... ...	5	10		
	Oct.	12	... ...	5	3		7 oz. *loss*
1959	Mar.		... ...	4	12		7 oz. *loss*

E. M. BLACKWELL,
Woodsome Lees.

AN ACCOUNT OF THE WARBLERS (*PHYLLOSCOPUS AND SYLVIA*) PASSING THROUGH KNARESBOROUGH SEWAGE FARM DURING JUNE TO SEPTEMBER 1958, BASED MAINLY ON TRAPPING FIGURES

J. R. MATHER

DURING the period June 12th to September 22nd, 1958, one hundred and twenty-six warblers of the genera *Phylloscopus* and *Sylvia* were caught and ringed at Knaresborough sewage farm. The trapping site lies on the south bank of the River Nidd at the entrance to the sewage farm, and the traps are situated at the east end of a long strip of cover, about 300 yards long and about 30 yards wide, this being bordered by the river and large willow, elm and sycamore trees on one side and large pools and gravel heaps on the other. The area itself is well covered with hawthorn, elder and alder in the main, with a generous undergrowth of bramble and a dense covering of balsam (*Impatiens glandulifera*).

All the birds were caught in a permanent Heligoland type trap and one 40 foot Mist net (always erected in the same position), about 40 yards separating the two. Thirty-eight trapping sessions were involved, thirty-two being evening ones: 5 p.m. (G.M.T.) onwards, and six Sunday morning ones: 7 a.m. to 12 noon (G.M.T.).

It is interesting to note that only twelve of the one hundred and twenty-six birds caught were adult (apart fron re-traps of previous years—not included in the total), eight of these occurring before the end of June. The one hundred and eleven juveniles were trapped between June 28th and September 22nd.

The only time when anything suggesting a definite movement was in evidence was the period August 9th to 25th (6 trapping sessions during this period: viz. August 9th, 10th, 14th, 17th, 21st, and 25th) especially the 9th and 10th, when the wind was light, force 1, from the south-east. On the 9th, three Willow Warblers, one Garden Warbler and two Blackcaps were caught and on the 10th, one Willow Warbler, three Blackcaps, five Whitethroats and one Lesser Whitethroat, with Willow Warblers and Whitethroats remaining in evidence on the remaining four trapping sessions of this peak period.

Numbers of each species ringed are as follows:

Species	*Adult*	*Juvenile*	*Retrapped from Previous Years*
Willow Warbler ...	4	54	1
Garden Warbler ...	1	3	
Blackcap	1	4	
Whitethroat	6	48	3
Lesser Whitethroat		5	
Totals	12	114	4

The following is a more detailed account of the species occurring:

WILLOW WARBLER (*Phylloscopus trochilus*)

Single adults netted on June the 12th, 24th, and 29th were no doubt resident birds. The first juveniles (single birds) were caught on June 28th and 29th. A note for the 29th reads "Juvenile Willow Warblers and Whitethroats well in evidence this a.m." The remaining 52 juveniles trapped were fairly evenly spaced over the period July 4th to August 25th, nine on July 12th being the most caught in one session. After a few odd sight records thereafter, the last bird was seen on September 15th, a very brown individual. A bird retrapped on June 23rd was ringed at the same place on April 20th, 1956, and was no doubt a local breeder.

GARDEN WARBLER (*Sylvia borin*)

An adult and juvenile were caught on July 11th and single juveniles on August 9th and September 15th.

BLACKCAP (*Sylvia atricapilla*)

Two juveniles caught on August 9th and an adult male and two juveniles on August 10th suggests a movement of species, the only other autumn record being a male on July 6th. A late juvenile appeared on October 5th.

WHITETHROAT (*Sylvia communis*)

Five of the six adults ringed were females, caught on June 15th (1) June 22nd (2) June 24th (1) and June 29th (1). The other, a male on July 4th. This suggests a possible withdrawal of fairly local breeders. First juveniles were caught on July 29th (2) and steadily thereafter (45 birds) until September 9th (1) with little or no fluctuation of catches indicating anything more than a steady trickle of birds. An odd bird ringed on September 22nd was the last recorded for the year. A bird retrapped on June 23rd was ringed on July 21st, 1957, as an adult female. One retrapped on July 6th and 13th was ringed on July 31st, 1955, as an adult and one retrapped on August 17th was ringed on July 20th, 1957, as an adult female. (All ringed where retrapped.) These three birds suggest regular passage through the area.

LESSER WHITETHROAT (*Sylvia curruca*)

Single juveniles were caught on July 6th, July 21st, July 22nd, August 5th, and August 10th. The bird trapped on July 22nd was retrapped on August 1st and 8th and that on August 10th was retrapped on August 17th. One was seen on August 14th.

In addition to the foregoing species, was a Chiff-Chaff (*Phylloscopus collybita*) sining at the trapping site on July 18th. This is the only autumn record of this species. The only species of Warbler known to be breeding in the immediate area of the traps were Willow Warbler (two pairs), Whitethroat (two pairs) and Sedge warbler (*Acrocephalus schoenobanus*) (one pair).

[I do not regard Mr. Mather's figures of Warblers captured from June 12th to September 22nd, 1958, as in any way exceptional for a bushy place near to a sewage farm sited on the river bank near to the bottom end of any of the Dales. The early part of the period mid-July to September is that during which the young (and some adults) of Warblers (and some other species) are wandering from their breeding habitats prior to beginning their serious autumn migration. Those at Masham (somewhat nearer to the hills) for a number of years I have caught and ringed such birds during the same period in my garden which has a stream alongside and is provided with bushes planted by myself. I never erect the trap until mid-July in order not to harry any birds breeding locally whose young may not yet be on the wing. I have not used a mist-net, but have confined myself to a temporarily erected Heligoland-type trap constructed of bamboos and ¾ inch meshed garden (fish) netting, with a trapping box made by a local joiner. My results as regards Warblers for the past two seasons have been as follows; but many other species have been caught including tits, finches, and Turdidae, etc. 1958 was the first year in which I caught neither Blackcap nor Redstart, which possibly reflected comparative local scarcity of those species.

Species	*1957*	*1958*
Willow-Warbler	42	39
Whitethroat	19	12
Lesser Whitethroat	—	1
Blackcap	5	—
Garden Warbler	3	4
Redstart	8	—

The last warbler to be caught in 1958 was a whitethroat on September 10th; and in 1957 was a Willow Warbler on September 11th.

R.C.]

Les Papillons, by **Guy Mathot.** Pp. 1-126 with 23 figures and 23 full page plates. Presses Universitaires de France, 108 Boulevard St. Germain, Paris VIe, 1958. Price not stated—probably not more than 5/-.

This little paper-backed book—No. 797 in a 'Que Sais-Je' series—is packed with information on many aspects of the biology of butterflies and moths, including sections on mimicry, polymorphism, migration and even palaeontology. There is a long chapter on classification and family characteristics as well as basic essentials such as life histories and anatomy. Much of the mateial is otherwise available only in the larger text-books. The book is not difficult for anyone with ordinary school level in the French language. Altogether this little Lepidopterists' Manual, only pocket size, is strongly recommended to amateur and professional alike.

ON THE INCREASE OF THE COMMON GULL IN EAST LANCASHIRE

K. G. SPENCER

Part I

Until very recently the Common Gull (*Larus canus* L.) was a scarce bird in East Lancashire. Thus, of the Heywood area, I. Whittaker (1935) writes: ' So far as I know this species has never been identified in the district.' In Rossendale, the late C. K. Parker (1928) had only four records of its occurrence during a period of over twenty years' careful observation, whilst of an extensive area approximately centred on Burnley, Messrs. C. Oakes and E. Battersby (1939) have said: ' The special weather conditions which have coincided with inland occurrences of the Common Gull in the district suggest that the bird is a vagrant . . . The species has not been seen since October 30th, 1933, when I (C.O.) watched a party of eleven . . . Severe north-easterly gales had been prevalent on the east coast for two days previously.' Between 1945 and the early 1950's my own observations in Burnley and north Rossendale, together with those of E. Ward in central Rossendale, confirmed this scarcity.

I noted birds present among other gulls at Towneley Holmes, Burnley, on several occasions from 1948 onwards, and in October, 1949, registered my first record for north Rossendale. Since then, the increase has gained momentum, so that now, from being an occasional visitor to the area, the Common Gull could fairly be described as regularly present in moderate numbers between the end of July and early spring. The same applies to Rossendale proper (E. Ward) and at least as far south as the Cheesden district (formerly covered by I. Whittaker, *supra*).

The first arrivals in East Lancashire normally came at the end of July, and are adults. Passage continues throughout the autumn, with numbers reaching their maxima in October-December inclusive. Immatures become conspicuous during this latter period (*cf.* Oakes, 1953) and commonly constitute at least 50% of a flock's membership. Sometimes groups almost entirely composed of immatures occur (*e.g.* 28 on December 28th, 1951, of which 26 were first-year birds). Occasionally the gulls are actually to be seen passing directly north-south, but for the most part the movement is leisurely, and one has the impression that the same individuals may be about on certain fields for days at a time. The first hard frost—usually in December or January—causes a sharp drop in numbers, and if severe conditions persist the birds become entirely absent. In most years there are a few February and March records. but on the whole there is remarkably little evidence of any return in spring. Evidently the gulls then travel by an entirely different route or else pass through our area very speedily—perhaps at night—and with no delay on the fields.

Like Lapwings and Golden Plovers, Common Gulls find certain fields particularly attractive, and resort to them year after year. Earthworms seem to be their chief prey. It is difficult to see why our area was ignored by the species before, because, so far as I know, Common Gulls have long been familiar in North, West and South Lancashire, and also in much of West Yorkshire.

Part II

An increase of the Common Gull as an autumn/winter visitor has already been noted in Cheshire (Boyd, 1951, 1956, 1957). In Yorkshire, *c.* 6700 were recorded at the Eccup roost on October 7th, 1955 (Y.N.U. Orn. Report), compared with the previous maxima of *c.* 1,000 in August, 1947, and November, 1950 (Chislett, 1953). Moreover, in Yorkshire a pair nested by a Pennine tarn in 1955 (*loc. cit.*) and another pair elsewhere in 1957 (*ibid.*). From Cumberland we have the report of Blezard *et al.* (1943) that the Common Gull is gradually extending its breeding range southward into the county, to which is added (1958) the statement that ' June arrival of Common Gulls becomes more regular.'

This latter assertion, I suggest, gives a clue towards the origin of our increasing visitors. At first I was inclined to think they were from Scandinavia, since we know from the ringing returns that many Scandinavian-born Common Gulls do reach northern England. But the mention of June arrival leads me to suspect that the increase may stem from sources nearer home, and this opinion is confirmed by the fact that in Scandinavia the Common Gull is not apparently on the increase at all. Einari Merikallio in his *Finnish Birds, their Distribution and Numbers* (1958) says nothing about any change of status, whilst in Denmark—so Dr. Bernt Løppenthin

tells me—there may actually have been some decrease in face of competition from the Black-headed Gull (*L. ridibundus* L.). Dr. H. Holgersen (Norway) and S. Ulfstrand (Sweden) tell me that the Common Gull now nests more generally inland than before, but stress that this may not involve an increase so much as a shift in the distribution of a stable population.

The Common Gull colonised the Faeroe Islands in 1890 and is now an increasing resident there (Williamson, 1945), whilst very recently it has nested for the first time in Iceland (Gudmundsson, *pers. comm.*). But the total population of these areas is too small obviously to affect our visiting population in northern England. Of Scotland and the Northern Isles, however, the Misses Baxter and Rintoul (1953) observe: ' In 1891 Harvie-Brown described the Common Gull as very abundant and increasing in Orkney. Fifty years later Lack found it on all the main islands and said it had increased greatly in recent years. This gull has only recently colonised Fair Isle; it did not nest there in 1912 but by 1936 was breeding regularly. It breeds in Shetland ' (where it has greatly increased over the past sixty years: see L.S.V. and U. M. Venables, 1955) ' but not as commonly as in Orkney. This species is becoming commoner in Scotland . . .'

It may well be from these areas, I suggest, that a good proportion of our autumn/winter stock derives.

Acknowledgements

The summary of the Common Gull's current status in East Lancashire is based on observations of my own along with others kindly submitted by Messrs. W. G. Hale, E. Ward and T. G. Wood, to whom I am very grateful.

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BLUETHROATS AND ASSOCIATED SPECIES AT SPURN IN 1958

E. S. SKINNER

A most interesting time was spent at the Spurn Bird Observatory from 5th to 8th April, 1958, when 250 birds were trapped and ringed.

An important event occurred at 8-15 a.m. on 6th April, when a male White-spotted Bluethroat (*Cyanosylvia suecica cyanecula*) was caught in the Warren trap by G. Harrington and D. A. Goode. It was kept in a gathering cage so that the other observers could see it. It was examined by Mr. and Mrs. J. H. I. Leach, G. R. Naylor, M. Densley, R. C. Parkinson and E. S. Skinner. Its throat and upper breast were a striking bright blue, with a minute white spot in the centre of the upper breast. This white spot was sometimes obscured by the blue feathers above it. Full details of its plumage were recorded in the observatory log and colour photographs taken, prints of which are now in the observatory album.

The bird was released and was found again later in the day feeding around some

small pools of standing water in the grass field between the cottage and the sea, where it was watched by all observers and H. O. Bunce and two friends who had arrived around mid-day. Its Robin-like movements were noted, as it searched for food. It usually kept its back towards the observers, but its buff eye-stripe could usually be seen. Although the blue throat was visible, the white spot was not noticeable in the field.

This is only the second definite record of a White-spotted Bluethroat in Yorkshire, the first being in 1876.

At about 10 a.m. on the same day, G. R. Naylor saw two Avocets (*Recurvirostra avosetta*) feeding on the mud on the Humber shore near the Canal zone. Even when disturbed, they returned to the same area and were seen by all observers. They were joined by a third Avocet on April 7th, but there was only one on the 8th and 9th.

During this period (April 5th to 8th) there was a marked influx of Blackbirds, Robins and Chaffinches, with a few Hedge Sparrows. The wind was north-easterly on the 5th, backing to north about mid-day on the 6th and the weather was very cold, with occasional sleet showers on the 7th and 8th. The fact that a White-spotted Bluethroat arrived with these commoner species probably indicates that all of them were birds of continental origin. The White-spotted race has a wide continental breeding range, including Eastern France, Belgium, Holland, Germany and Western Russia. On the other hand, the Red-spotted Bluethroat—to which race most autumn recorded birds are assumed to belong because of their travelling companions—breed in the northern parts of Norway, Sweden, Finland and Russia. Identification, however, cannot always be certain, owing to the impossibility of separating the females and juveniles of the two races.

It was probably a piece of good luck that I should have also been at Spurn on September 6th, 1958, with R. F. Dickens, G. R. Bennett, G. R. Edwards and others, when three Bluethroats were trapped, which were in all probability the Red-spotted race. There was an anti-cyclone centred over Scandinavia, causing south-easterly winds over the North Sea, and there was a tremendous influx of birds during this period from September 2nd to 7th. In addition to the three Bluethroats which we were able to examine in the hand during this week-end and compare with our memories and descriptions taken of the Easter White-spotted bird, two other Bluethroats were caught about this time.

The following table, giving details of species and numbers trapped, will give a very good idea of the extent of this amazing drift of birds as recorded at Spurn. Many more occurred than were caught and ringed.

TABLE TO SHOW NUMBERS OF SELECTED MIGRANT SPECIES RINGED AT SPURN DURING PERIOD AUGUST 31ST TO SEPTEMBER 9TH, 1958

Species	Aug.	September								
	31	1	2	3	4	5	6	7	8	9
Wryneck			1	2	2		3	1		1
Wheatear				2	1	5	2			
Whinchat				1	2		2		1	
Redstart		1	3	27	18	24	19	3	3	2
Bluethroat					1		3		1	
Barred Warbler				1						
Icterine Warbler		1				1	1			
Garden Warbler		2	7	17	12	5		1	1	1
Whitethroat		2	3	5	1	2	4		4	
Lesser Whitethroat	1									
Willow Warbler	3		16	16	13	35	38	8	4	5
Wood Warbler		1								
Spotted Flycatcher			1	1	4	1	1	1	1	
Pied Flycatcher		3	16	25	14	9	12	3	1	3
Red-breasted Flycatcher				1						
Tree Pipit			1	2	2	1	4		3	
Red-backed Shrike	1			1						

One of the results of the Observatory work at Spurn has been to show that some of the above species do occur with much greater regularity than earlier observations had indicated. Their presence would often remain undetected, as they are sometimes not seen until they are driven into the catching boxes of the traps. But for the catching of the Bluethroat at Easter, it would probably never have been known whether it was a White-spotted or a Red-spotted Bluethroat.

The chief value, however, of such records lies in their correlations with those of other observers and observatories.

Both the Spring and Autumn movements affected the whole of the east coast of Britain, and the observations from Spurn, together with those from the other observatories, do help to give a more complete picture of the developments of such migratory movements.

FIELD NOTE

Inland Breeding of Greater Black-Backed Gull.—Since the *Handbook of British Birds* and other standard works do not quote any inland breeding records of the Greater Black-backed Gull (*Larus marinus*), we thought it necessary to put on record the inland breeding of this bird on the Yorkshire-Lancashire border, some twelve miles from the Lancashire coast. The area is one of peaty moorland with heather and Sphagnum bogs, intersected by numerous erosion channels at over 1000 ft.

Young Gulls have been found in the centre of a large breeding colony of Lesser Black-backed Gulls (*Larus fuscus*), estimated at 6000+ pairs in 1958.

Greater Black-backed Gull chicks were observed by Davis and Iles in 1951, 1956, and 1958. The chicks (single in all three cases) were distinguished from the young of the Lesser Black-backed Gull by their larger size (the chick of the larger species was equal in size to a fully fledged Lesser Black-backed chick although they were all only feathered on part of the mantle and wings at the time of observation) and their heavier bills and less spotted head. The parents were seen and heard circling above, and dived at the observers.

From notes collected from Fenton, P. C. Quin and R. F. Dickens, it appears that adults have been present since 1949 and possibly earlier, with a steady increase in numbers from 3+ pairs in 1951 to 20-25 pairs observed by P. C. Quin in 1958.

These appear to be the first instances on record of breeding inland in Britain although the *Handbook of British Birds* states that in high Northern Europe it habitually nests by lochs on heaths and lower fells.

Some 100 pairs of Herring Gulls also bred in the colony in 1958, and again appear to have done so since 1949. Inland breeding of this species appears to be unusual. Young have been observed by Quin, Dickens, Iles and Rushforth since 1951.

D. B. Iles, J. R. Govett, D. Rushforth.

The Diptera of Lancashire and Cheshire, Part 1, by **L. N. Kidd and A. Brindle.** Pp. 136. Published by the Lancashire and Cheshire Fauna Committee. Obtainable from: A. K. Lawson, Hon. Treasurer, 25 Rydal Drive, Hale, Altrincham, Cheshire, Price £1 1*s.* 0*d.* post free.

This volume forms part of a work which is to be completed in two parts. Some 1,600 species of the first 29 Families (Tipulidae to Syrphidae) are listed and receive very detailed treatment, for much valuable information is given on the ecology of larvae and adults and on details of flight periods of adults, based on local information. In addition, a comprehensive bibliography is included, covering some 140 items.

A compilation of this kind owes much to the active work of past generations of local naturalists and in this instance in particular to the late Mr. Harry Britten who carried out intensive work on the order from 1920 until his death in 1954.

All those concerned with the publication of this list are to be congratulated on its excellence, and in particular Messrs. Kidd and Brindle whose names alone are sufficient guarantee of its value. It should do much to stimulate further work in the area and will prove to be a veritable *vade mecum* to all dipterists.

H.M.R.

SOME OLD EAST RIDING PLANT RECORDS

Ronald Good

A year or two ago I was able to acquire for the Department of Botany, University of Hull, a bulky old manuscript volume containing some interesting records of East Riding plants. The volume is in the form of a herbal and was compiled by the Rev. William Whytehead when he became Vicar of Atwick, a village north of Hornsea, where he remained for over 60 years.

Whytehead was born at Flamborough on the 3rd August, 1729, and was educated at Sydney Sussex College, Cambridge. He was ordained Deacon on the 26th May, 1762, and was Curate of Bridlington 1752-1756.

The title page is 'A collection of plants, most of which were found at Hornsea in Holderness, with their medicinal use and deleterious qualities, compiled from Gerard, Johnson, Ray, Tournefort, Quincy, James, Hill . . . by W.W. B.A.' and a note that says 'I begun this collection of plants A.D. 1757, the year after I was instituted to the Vicarage of Atwick and came to reside at Hornsea'. Elsewhere it is inscribed 'Margaret Whytehead, the much esteemed gift of her very dear father 1817'. From internal evidence the volume seems to have been added to for many years and it contains well over 500 pages.

Its purpose appears to have been to provide a medical herbal from which the vicar would be able to give advice to his parishioners and the main part of the manuscript refers to the preparation, virtues and use of wild and garden plants in this way, but the volume is made of special interest to botanists because on the pages opposite these notes are inserted small specimens of the flower and the leaf of the plants concerned and most of these are clearly recognizable. In most there are also notes as to where they came from.

As will be seen from the following list of the most important records (with the localities as given by Whytehead) they include a number of plants now either very rare or entirely unknown in the East Riding.

Myosurus minimus L. Nr. Brockham in the West field.
Helleborus niger L. Near old pear tree not far from Nunkeeling Church but destroyed in 1775.
Sisymbrium sophia L. At the Meer side.
Sagina nodosa (L.) Fenzl. Kirkham.
Hypericum androsaemum L. Lane between Holmpton and Patrington. Winestead.
Erodium moschatum (L.) L'Hérit. Between the vicarage and the churchyard and on the churchyard wall.
Genista anglica L. Between York and Shipton.
Genista tinctoria L. Atwick.
Comarum palustre L. Leven Carrs. Hornsea end of Rowlston Lane.
Parnassia palustris L. Sigglesthorne gravels.
Drosera longifolia auct. On ye Wolds near Market Weighton.
Sambucus ebulus L. On a ditch bank leading from the Meer into the Leys, and plentifully near the rector's garden at Sigglesthorne.
Asperula cynanchica L. Langton Wolds.
Antennaria dioica (L.) Gaertn. Wolds between Cowlam and W. Lutton.
Inula helenium L. In Beeford Churchyard.
Silybum marianum (L.) Gaertn. Ulrome. Pattinson's Close, Hornsea. Goxhill.
Lactuca virosa L. Seaton Lane.
Gentiana campestris L. Atwick South Field.
Atropa belladonna L. Beverley Westwood.
Pinguicula vulgaris L. Sigglesthorne Gravel. Driffield Beck.
Verbena officinalis L. By the Meer side.
Mentha pulegium L. At the side of the Meer and at Hatfield.
Nepeta cataria L. Nr. the South Pinfold.
Marrubium vulgare L. By the Meer side.
Salvia horminum L. On ditch banks at the E. end of the town.
Leonurus cardiaca L. Vicarage yard, Atwick.
Myrica gale L. Leven. Arram nr. Beverley.
Spiranthes autumnalis Rich. An Atwick S. Field near the cliff.
Stratiotes aloides L. In Leven Carrs and near Hornsea Meer.
Tulipa sylvestris L. Vicarage orchard, Hornsea.
Colchicum autumnale L. Sledmere.

Asplenium adiantum-nigrum L. Bridlington Church. Burton Agnes. Beeford.
Ceterach officinarum DC. On Nunkeeling Church.
Botrychium lunaria (L.) Sw. Ley Ins.

Obituaries

A. THOMPSON, B.Sc.
(1876-1959)

Arnold Thompson was born at Rawdon, near Leeds, on the 15th June, 1876, and died at Skipton on the 27th January, 1959. After graduating at London University, his first teaching appointment was at the Friends' School at Saffron Walden. The year 1902-3 was spent in further study at the University of Tübingen. He taught at Bootham School, York, from 1903-6, when he went to King Edward VII School, Sheffield, remaining there until his retirement in 1936, when he and his wife came to live in Skipton. While at Sheffield he was for long a Committee member of the Sorby Natural History Society, and on his removal to Skipton he took an active part in the affairs of the Craven Natural History Society, being elected President in 1944 and 1945. At the time of his death he was Librarian and Recorder for Ornithology for that Society. Although Thompson will be remembered in the Y.N.U. primarily as a bryologist, yet he was very interested in birds and was something of an authority on bird song, as any companion of his in the field soon realised.

Thompson became a member of the British Bryological Society in 1931, his special interest being in the Sphagnaceae. He became a Referee for the Subsecunda section of Sphagna in 1933, also taking on the refereeing of the Acutifolia and the Cymbifolia sections of Sphagna in 1946. During 1946 he became Recorder for Sphagna, continuing as Referee and Recorder until 1950. He did much useful work in revising the *Census Catalogue of British Sphagna* compiled for the British Bryological Society by W. R. Sherrin in 1937, bringing it up to date in 1946. He acted as Secretary of the British Bryological Society from 1936 to 1947. He was also President for 1948 and 1949, and was elected an Honorary Member of the Society in 1952.

A number of our present Y.N.U. bryologists owe not a little to encouragement from Thompson in their early days, and the writer recalls with pleasure his very first bryological excursion to Bolton Abbey under Thompson's guidance when several beginners were initiated into some of the bryological mysteries. He was a man of quiet, retiring, but kindly disposition, with a wide experience of Sphagna, in which lay his most valuable work. To his widow, Mrs. Silva Thompson, his constant companion on countless excursions, we extend our deepest sympathy.

List of Publications

New Vice-County records for north country mosses, *Journ. Bot.*, June, 1931, pp. 163-4 (Sphagna and Mosses: Derby, Lakes, Yorks. and Perth).
New Vice-County records for Sphagna, mostly north country, *Journ. Bot.*, Aug., 1932, pp. 234-5.
New Vice-County records for Sphagna, mostly north country, *Journ. Bot.*, June, 1933 (V.C. 5, 63 and 69), p. 188-9.
New Vice-County records for Sphagna, mostly north country, *Journ. Bot.*, March, 1934, pp. 81-2.
New Vice-County records for Sphagna, mainly from the northern counties, *Journ. Bot.*, Feb., 1935, pp. 51-3.
New Vice-County records for Sphagna from England and S.W. Ireland, *Journ. Bot.*, July, 1936, pp. 206-8.
Bog-Mosses near Sheffield, *Nat.*, 1939, pp. 294-5.
Sphagna at Austwick, *Nat.*, 1940, p. 213.
Bryophyta of Cockett Moss, *Nat.*, 1943, pp. 128-9.
Cave Mosses, *Nat.*, 1945, p. 80.
Mosses of Spurn, *Nat.*, 1946, p. 156 (includes *Trichostomum flavovirens* Bruch, new to Yorks.).
Yorkshire Sphagna, *Trans. Y.N.U.*, Part 37, April, 1946.
Bryology at Harrogate, *Nat.*, 1949, p. 166.
Y.N.U. Excursion Report (Malton), *Nat.*, 1950, p. 168.
Y.N.U. Excursion Report (Ripon), *Nat.*, 1950, p. 171.

G.A.S.

DAISY HILARY, B.Sc.
(1888-1959)

We were shocked to hear of the death by accident of Miss Daisy Hilary of Bingley. For many years she was an active member of the Yorkshire Naturalists' Union, and was a keen botanist and attender at meetings, both indoors and in the field.

Miss Hilary, an outstanding pupil of Bingley Grammar School, graduated at Leeds University and spent her teaching life in Leeds secondary schools. We had contacts with her when she was Senior Mistress and Biology Mistress at Cockburn High School, Leeds, and saw how much the school enjoyed her influence. She was a splendid organiser as well as a very successful teacher. For a period of years she was an examiner in biology subjects for the Northern Universities' Joint Matriculation Board.

Miss Hilary was one of the first women members of the Mycological Section of the Y.N.U., when some of the older mycologists would scarcely recognise the existence of women as serious students of mycology. However the late F. A. Mason, who was always willing to teach a beginner in mycology was there to smooth the way for her and others. She was also a keen member of the Bryological Section, and was for many years secretary of the Ecological Section which worked on the ecology of juniper on Moughton Fell, and reported annually. This involved detailed measurements and frequent visits to Moughton for a number of years.

We often met Miss Hilary at field meetings, and in those early days there were neither slacks nor shorts for women, so she and a few others wore old school gym tunics as suitable wear for climbing and scrambling. She was always a cheerful member of the party, and many will recall hearing her merryl augh across a meadow as specimens were examined and discussed in a light-hearted way.

Miss Hilary was a deeply religious woman, church worker and Sunday school organiser, and will be greatly missed by the Bingley Parish Church, for which she was working up to her death. It is sad that her life ended so suddenly when she was still in perfect health, but we shall long remember her pleasant influence in the Y.N.U. We offer our sincere sympathy to her family.

M.G.

Y.N.U. NATURAL HISTORY EXHIBITION

On April 18th 1959 the Union held its first public exhibition meeting in the Biological laboratories of Leeds University. This was, of necessity, experimental as the potential support from members and the public could not be assessed. The reaction of the public exceeded all expectations and during the three hours the exhibition was open it was estimated that about 1000 people passed through the three laboratories, indeed by mid-afternoon numbers were so great that the University Zoological Museum was opened to draw off part of the crowd.

The four affiliated Leeds societies agreed to act as hosts on this occasion, and the Nature Conservancy, Forestry Commission, and Malham Tarn Field Centre contributed. Every section of the Union showed examples of its work; several local societies, in addition to the hosts, put on exhibits, and many individual members assisted in society or individual displays. Almost every aspect of the work of the Union's members and associates was shown in the form of specimens, models, photographs, distribution maps, etc. It is hoped that, following this success, some form of exhibition may be repeated quite regularly in different towns throughout the county.

The Union is grateful to many people for their help in assisting the organisation of this exhibition, notably the University authorities and staff for their hospitality, the exhibitors (full members or associates) for the work they put into their displays, and the Press for their valuable publicity. Members were provided with an excellent opportunity for discussion and the public, by its interest and goodwill so amply displayed, made all the work worthwhile.

A. H. B. Lee,
Hon. Organiser.

BRYOLOGICAL EXCURSION TO AKETON MARSH AND BURTON LEONARD,
April 11th, 1959

F. E. BRANSON

The weather was most favourable for a Bryological excursion. Aketon Marsh, although producing several interesting species, could not be described as a particularly 'mossy' area. A large part of it is covered with a dense matting of the dead, prostrate stems of *Juncus* spp., making it very difficult to part and so get beneath them. Among the most interesting species seen were *Physcomitrium pyriforme* growing on bare soil and on the banks of the stream, looking quite attractive with its numerous erect capsules, and also *Drepanocladus revolvens* var. *intermedius*.

F. A. Lees in his *Flora of West Yorkshire* records *Camptothecium nitens* as growing abundantly here in 1878. I had searched twice previously, but had failed to find it. It was not seen during the meeting. I had shown members present a sample beforehand so as to know what to look for. Perhaps it has been choked out by the thick layer of rushes. A similar thing seems to be happening in another location for this rare Yorkshire moss.

After lunch we decided to go to the limestone quarries at Burton Leonard where the totally different habitat provided different species, including *Fissidens cristatus* on a grassy bank and *Thuidium abietinum* growing plentifully in the short turf. *Amblystegium serpens* was also abundant, covering rocks in one of the quarries and fruiting most prolifically. Lists of the mosses and liverworts noted in both locations are given below.

Aketon Marsh

Funaria hygrometrica Hedw.
Aulacomnium androgynum (Hedw.) Schwaegr., on rotting trunk.
Acrocladium cuspidatum (Hedw.) Lindb., abundant, fruiting.
Physcomitrium pyriforme (Hedw.) Brid., abundant on bare mud, fruiting.
Dicranum scoparium var. *paludosum* Schp., one place.
Aulacomnium palustre (Hedw.) Schwaegr.
Drepanocladus revolvens (Sm.) Warnst.
D. revolvens var. *intermedius* (Lindb.) Richards & Wallace.
Brachythecium rutabulum (Hedw.) B. & S.
Bryum pseudotriquetrum (Hedw.) Schwaegr.
Mnium hornum Hedw., edge of marsh.
Campylium stellatum (Hedw.) Lange & C. Jens.
Dicranoweisia cirrata (Hedw.) Lindb., tree stump.
Orthodontium lineare Schwaegr., on tree stump, fruiting.
Lophocolea bidentata (L.) Dum.
Pellia epiphylla (L.) Corda.
Calypogeia trichomanis (L.) Corda.

Burton Leonard Quarries

Encalypta streptocarpa Hedw.
Pseudoscleropodium purum (Hedw.) Fleisch., abundant.
Camptothecium lutescens (Hedw.) Brid.
Brachythecium glareosum (Bruch) B.& S.
Amblystegium serpens (Hedw.) B. & S., abundant on boulders, fruiting.
Ctenidium molluscum (Hedw.) Mitt.
Acrocladium cuspidatum (Hedw.) Lindb.
Cratoneuron filicinum (Hedw.) Roth.
Campylium chrysophyllum (Brid.) Bryhn.
Eurhynchium confertum (Dicks.) Milde, abundant on boulders, fruiting.
Thuidium abietinum (Brid.) B. & S.
Weissia controversa Hedw., fruiting (collected by Miss Dalby).
Fissidens cristatus Wils.
Mnium undulatum Hedw.
Leiocolea turbinata (Raddi) Buch.

FUNGUS FORAY AT MALHAM

August 29th—September 2nd, 1958

W. G. BRAMLEY

Perfect weather prevailed throughout the week-end of the foray; indeed few weekends throughout this disappointing summer can have provided such beautiful weather conditions at Malham. Blue skies and warm sunshine combined to show the Tarn and surrounding country at its best, and with the working and other facilities of a Field Centre also at our disposal the meeting proved a thoroughly enjoyable one.

The customary emphasis on woodlands was switched to the collection of pasture and marsh species though the plantations behind Tarn House and to the east of the Tarn were also investigated. Fungi were not plentiful but as the list below indicates they included many previously unrecorded species.

At the meeting held on the Saturday evening our Chairman, Mr. W. D. Graddon, gave an account of ascus structure and its relation to classification in the Discomycetes. Dr. W. D. Hincks was elected Chairman for the ensuing year.

Thanks are due to Mr. P. F. Holmes for his help with the arrangements before and during the meeting and to Messrs. Orton, Henderson, Hincks, Graddon, Collinge, Watling and all others whose work in the field and the laboratory has made possible the compilation of the following list of species.

FTF=Far Tarn Fen. THE=Tarn House Plantation East.
HMP=Ha Mere Plantation. THW=Tarn House Plantation West.
NG=Northern Grassland.
*=Not in Mason & Grainger's *Catalogue of Yorkshire Fungi* for V.C. 64.
†=Not in Mason & Grainger's *Catalogue of Yorkshire Fungi*.
‡=New to Britain.

Discomycetes (W. D. Graddon).

Ascobolus stercorarius Bull.
†*Ascocorticium anomalum* (Ellis & Harkness) Schroet.
Calycella citrina (Hedw.) Quél.
Cheilymenia coprinaria (Cooke) Boud.
Chlorociboria aeruginosa (Oed.) Seaver
Coprobia granulata (Bull.) Boud.
†*Dasyscypha pygmaea* (Fr.) Sacc.
†*Galactinia apiculata* (Cooke) Le Gal.
G. badia (Pers.) Boud.
G. succosa (Berk.) Sacc.
G. umbrina (Boud.) Le Gal.
Helotium calyculus (Sow.) Fr.
†*H. scutula* var. *solani* Karst.
**Helvella pezizoides* Afzel.
†*Hyaloscypha leuconica* (Cooke) Nannf.
†*Lamprospora amethystina* (Quél.) Seaver
L. wrightii (Berk. & Curt.) Seaver
Otidea leporina (Batsch) Fr.
**Psilopeziza babingtonii* (B. & Br.) Le Gal.
Rutstroemia luteovirescens (Rob.) White
Scutellinia scutellata (Linn.) Lamb.
†*S. stenosperma* Le Gal.
S. trechispora (B. & Br.) Lamb.
†*Trichophaea abundans* (Karst.) Boud.
**T. gregaria* (Rehm) Boud.

Uredinales (D. M. Henderson).

Hyalopsora polypodii (Diet.) Magn., on *Cystopteris fragilis*.
Melampsora epitea Thuem., on *Salix atrocinerea*.
Phragmidium fragariastri (DC.) Schroet., on *Potentilla sterilis*.
P. sanguisorbae (DC.) Schroet., on *Poterium sanguisorba*.
Puccinia menthae Pers., on *Mentha aquatica*.
P. violae DC., on *Viola riviniana*.
Pucciniastrum guttatum (Schroet.) (=*Thecopsora galii*), on *Asperula odorata*
Uromyces valerianae Fuckel, on *Valeriana officinalis*.

Agaricales (P. D. Orton).

†*Boletus aeruginascens* Secr. (*B. viscidus* (L.) Fr.), THE.
B. elegans Schum. ex Fr., THE.
B. granulatus L. ex Fr., FTF.
†*Clitocybe suaveolens* (Schum. ex Fr.) Kummer, FTF.
Collybia radicata (Rehl ex Fr.) Quél., THE, THW.

AGARICALES—*continued*

†*Conocybe laricina* (Kühner) Kühner, THW.
**C. pilosella* (Pers. ex Fr.) Kühner *sensu* Kühner non Rea, THE.
‡*Coprinus cortinatus* Lange, THW.
C. micaceus (Bull. ex Fr.) Fr., THE, THW.
C. plicatilis (Curt. ex Fr.) Fr., NG.
†*Cortinarius* (*Dermo*) *cinnamomeo-badius* Henry, NG.
†*C.* (*Myx*) *pseudosalor* Lange, THE.
†*Crepidotus herbarum* (Peck) Sacc., FTF.
†*C. luteolus* (Lamb.) Sacc., FTF.
Entoloma porphyrophaeum (Fr.) Karsten, NG.
Galera hypnorum (Schrank ex Fr.) Kummer, THE, HMP.
**G. rubiginosa* (Pers. ex Fr.) Gillet, NG, THE, FTF, HMP.
Hebeloma mesophaeum (Pers.) Quél., FTF.
†*Hygrocybe aurantiosplendens* Haller, NG.
†*Hygrophorus cantharellus* (Schwein.) Fr., NG, HMP (in field).
H. chlorophanus (Fr.) Fr., NG.
H. conicus (Scop. ex Fr.) Fr., NG.
†*H. flavescens* (Kauffm.) Smith & Hesler, NG.
**H. intermedius* Pass., NG.
†*H. langei* (Kühner) Pearson.
†*H. marchii* Bres., NG.
**H. metapodius* (Fr.) Fr., NG.
H. miniatus (Fr.) Fr., NG.
H. ovinus (Bull. ex Fr.) Fr., NG.
†*H. pratensis* (Pers. ex Fr.) Fr. var. *pallidus* Cooke, NG.
H. psittacinus (Schaeff. ex Fr.) Fr., NG.
H. reai Maire, NG.
H. unguinosus (Fr.) Fr., NG.
**Inocybe cervicolor* (Pers. ex Fr.) Quél., THW.
†*I. eutheles* (B. & Br.) Quél., THW.
I. fastigiata (Schaeff. ex Fr.) Quél., THE.
I. geophylla (Sow. ex Fr.) Kummer var. *lilacina* Gillet, THW.
†*I. grammata* Quél., THE.
†*I. maculata* Boud., THE.
†*I. mixtilis* (Britz.) Sacc., THE.
I. obscura (Pers. ex Pers.) Gillet 1874, *sensu* Konrad & Maubl., HMP.
†*I. pelargonium* Kühner, THW.
†*I. pusio* Karst., THW.
Laccaria laccata (Scop. ex Fr.) Cooke, FTF, THW.
Lactarius subdulcis (Pers. ex Fr.) S. F. Gray, THE, THW, HMP.
L. turpis (Weinm.) Fr., HMP.
**Leptonia anatina* (Lasch) Kummer, NG.
L. sericella (Fr. ex Fr.) Barbier, NG.
**L. serrulata* (Pers. ex Fr.) Kummer, NG.
Mycena alcalina (Fr. ex Fr.) Kummer, THE.
†*M. arcangeliana* Bres. var. *oortiana* Kühner, HMP.
M. filopes (Bull. ex Fr.) Kummer *sensu* Lange, THW.
M. galopus (Pers.) Fr., THE, THW, FTF.
M. leptocephala (Pers. ex Fr.) Gillet (=*M. ammoniaca*), FTF, HMP, THE, THW.
†*M. margaritispora* Lange, FTF.
M. pura (Pers. ex Fr.) Kummer, THW.
**M. rubromarginata* (Fr. ex Fr.) Kummer *sensu* Lange non Pearson, HMP.
M. sanguinolenta (A. & S. ex Fr.) Kummer, THE, THW, HMP.
**M. speirea* (Fr. ex Fr.) Gillet, THE, THW.
M. vitilis (Fr.) Quél., HMP.
†*Naucoria granulosa* Lange, THE, THW, HMP.
†*Nolanea babingtonii* (Blox.) Sacc., THW.
N. infula (Fr.) Gillet, NG.
†*N. papillata* Bres., NG.
N. staurospora Bres., NG, HMP.
†*N. versatilis* (Fr.) Gillet, THE, THW, HMP.

AGARICALES—*continued*

Omphalia fibula (Bull. ex Fr.) Kummer, FTF, HMP, THE.
O. fibula (Bull. ex Fr.) Kummer var. *swartzii* (Fr. ex Fr.) Karsten, FTF.
†*O. grisella* (Weinm.) Karst., NG.
O. integrella (Pers. ex Fr.) Kummer, FTF.
O. umbellifera (L. ex Fr.) Kummer, NG.
†*Panaeolus rickenii* Hora, NG.
P. sphinctrinus (Fr.) Quél., NG, HMP.
Paxillus involutus (Batsch ex Fr.) Fr., FTF.
Pholiota erebia (Fr.) Gillet, THW, HMP.
P. mutabilis (Schaeff. ex Fr.) Kummer, HMP.
Pluteolus aleuriatus (Fr. ex Fr.) Karsten, HMP.
Pluteus nanus (Pers. ex Fr.) Kummer, HMP.
P. phlebophorus (Dittmar ex Fr.) Kummer, HMP.
**P. semibulbosus* (Lasch) Gillet *sensu* Boudier, HMP.
**Psilocybe physaloides* (Bull. ex Merat) Quél., NG.
P. semilanceata (Fr. ex Secr.) Kummer, NG.
†*Rhodophyllus caesiocinctus* Kühner.
†*Russula cessans* Pearson, FTF.
R. cyanoxantha (Schaeff. ex Secr.) Fr., THW.
R. ochroleuca (Pers. ex Secr.) Fr., THW.
†*R. queletii* Fr., HMP.
†*Tricholoma atrocinereum* (Pers.) Quél., NG.
T. rutilans (Schaeff. ex Fr.) Kummer, HMP.
T. sordidum (Fr.) Kummer, THE.

BOOK REVIEWS

The Open Sea: Vol. 2, Fish and Fisheries, by **Sir Alister Hardy.** Pp. xv + 322 with 16 plates in colour and 32 plates in black and white. *New Naturalist Series,* Collins, 1959. 30/-.

This is a worthy successor to Part One, easily readable, interesting, highly informative, well arranged. There are numerous illustrations of fishes either from water-colours by the author or from photographs, many by that famous photographer of marine organisms, Dr. D. P. Wilson. Besides these, are many figures, coloured and plain, of invertebrates and of mammals such as whales and seal-like forms. Some of the aerial photographs of whales are especially useful for the unusual views of these animals: one, particularly, of a cow suckling its calf.

After an introduction which makes a link with Part One, the author takes us aboard a trawler and describes and discusses different catches in different parts of the North Sea. Most of the coloured figures of fishes were made from paintings of specimens picked from the catches. The herring and the herring fisheries are considered next, and the fisheries are followed through the year and over the extent of the North Sea and the Irish and Celtic Seas. We are shown fish marking, age determination, the life history, population statistics, relations between prey and predators and an abundance of other matters, all presenting the herring as an immensely important animal, commercially and scientifically.

Chapters on other pelagic fish and on bottom living animals, extremely well illustrated, lead on to the story of the plaice, which is perhaps the longest studied fish in European waters.

Demersal fishing covers consideration of cod and cod-like fishes with, again, a great amount of information about habits, life-cycles, population dynamics, food relations, and the like. Parasites and parasitism form the subjects of a very useful chapter followed by a discussion of the over-fishing problem.

After a discussion on marine ecologists and the future, the author makes a plea for a unified control of all British work on the seas around Britain instead, as at present, of a political division by the Scottish Home Department, Fisheries Division and the Ministry of Agriculture, Fisheries and Food. He points out that the animals and the currents and the solutions know no political boundaries and are best treated as one great subject for study.

Altogether, this is a book to own by all those interested at all in fish and fisheries. It has value in other places, far removed from the British Isles, and amateur and professional alike are indebted to Professor Hardy for this volume. E.P.

The Invertebrates, vol. 5. Smaller Coelomate Groups: Chaetognatha, Hemichordata, Pogonophora, Phoronida, Ectoprocta, Brachipoda, Sipunculida: The coelomate Bilateria. **Libbie H. Hyman.** Pp. viii + 783 with 241 text figures. McGraw-Hill. £5 4*s*. 6*d*.

Since the first volume of *The Invertebrates* appeared in 1940 each new volume has been awaited with increasing interest. The present text deals in a remarkably thorough manner with a series of extremely difficult groups, for most of which no good modern account is available in any language. Apart from the Ectoproct Polyzoa however, whose beauty when alive is a constant delight to the naturalist these are rather unfamiliar forms and the treatment is advanced, so that the main appeal is to advanced students or profassional zoologists and to them the book is recommended without qualification; nevertheless the natural history aspects are unusually fully treated, under headings separate from anatomy and development, and by themselves make fascinating reading. Equally interesting from a different point of view are the author's discussions of the relationships of these groups to each other and to the major animal phyla. The resemblances of Hemichordates to Chordates she considers genuine but tenuous, indeed less than to Echinoderms, and would prefer all three as associated but separate phyla; of the Graptolites however she finds the evidence insufficient for inclusion in the Hemichordates. Particularly refreshing is her masterful demolition of 'phylogenetic notions' which depend on seductive ideas in place of evidence. A final chapter summarises recent work on groups treated in earlier volumes. In the Preface alas a sad note is struck on the possibility of completing her immense task, but at least she can be sure of the sincere good wishes of all zoologists and their unstinted gratitude for what she has already accomplished.

T.K.

Beetles of the British Isles, by **E. F. Linssen.** Two vols., 126 plates (63 in colour). Wayside and Woodland series. Warne, 1959. 30/- each.

After the butterflies and moths the beetles probably attract the attention of most entomologists and an introduction that would enable a reasonable number of species to be named has been badly needed. This work had been designed to satisfy this need and within its limitations should prove useful. After an introductory chapter on structure, metamorphosis, habitats and nomenclature (but with no information on equipment or methods of killing and mounting) the author describes a selection of the beetles in each family. The illustrations, almost all copied from Fowler's *Coleoptera of the British Islands*, are reasonably good, a few being poor, and identification is made by comparison with these illustrations there being no adequate keys if this fails. The beginner will be grateful for these, so wide a range not being available in any other introductory work. A representative selection of larvae is figured in the text.

The text is generally disappointing, uninspired, padded with lists of synonyms for species not otherwise mentioned (eleven in the genus *Harpalus* though no species in this genus could be reliably named from this book) and shows all the signs of having been culled from Fowler and other works without the author having had the personal acquaintance with the subject necessary for the production of a work of this nature. In spite of the publishers' claim that it 'gives a full description of all the common species found in this country' many very common and distinctive species are omitted, e.g., *Calathus melanocephalus* (L), *Aphodius fimetarius* (L.), *Cantharis pellucida* F., and *Otiorrhynchus singularis* (L.), while many small, obscure and rare beetles are included. Where identification can be made from colour pattern alone this book will help the beginner, but where structural characters must be used the descriptions are generally inadequate and sometimes inaccurate. *Abax parallelopipedus* (Pill.) is not 'rather pubescent, except for the first three joints of the antennae.' The characters that distinguish common species easily in the field, well known to every coleopterist, e.g., the yellow underside of the first joint of the antennae of *Philonthus cognatus* Steph., are rarely mentioned. Errors of spelling, consistently repeated (Malacordermata for Malacodermata) are unlikely to be printer's errors.

The large number of illustrations are the redeeming feature of this work, otherwise so disappointing, and it should stimulate many to tackle this fascinating order with some success, so that the student will ultimately be able to turn to more detailed works with at least a basic knowledge of the order.

J.H.F.

Excursion Flora of the British Isles by **A. R. Clapham, T. G. Tutin and E. F. Warburg.** Pp. xxxii + 579. Cambridge University Press. 22/6.

The authors' larger Flora of the British Isles which is accepted as the standard systematic work on British vascular plants is not well suited to the needs of undergraduates and school pupils and the present shortened version is designed to provide a simplified and more portable account better adapted to the use of beginners. The reduction in size had been achieved by omitting descriptions of alien plants and all rare species save those likely to be seen by visitors to field centres, and by condensation of the descriptions themselves. The keys to genera and species are however largely unchanged from the earlier work, and, except in the so-called critical genera, include all British representatives, clarendon and italic type being used to distinguish between the names of those which are and are not furnished with descriptions in the text.

As a compromise between a full and a selective account of British wild plants this is probably about as fair a balance as could have been struck and the book will doubtless be widely used by those for whom it is intended. For the most part the names of species have been brought into line with those employed in Dandy's *List of British Vascular Plants* and this will help to stabilise nomenclature. Notable exceptions occur in the Cyperaceae and Gramineae where various genera of dubious validity are upheld. *Trichophorum, Schoenoplectus, Eleogiton,* and *Isolepis* are discarded by Dandy "pending monographic treatment on a world basis" and it is a pity that the wisdom of this course has not been appreciated by the author concerned. What may serve for a few British representatives breaks down elsewhere, for the late Dr. H. H. Allan told the present writer that *Eleogiton* and *Isolepis* are inseparable in New Zealand. The grasses *Zerna, Anisantha* and *Ceratochloa* are similarly retained despite the recent publication of Hubbard's work which is by far the best available account of British grasses. Acceptance or rejection of these genera may be largely a matter of personal opinion but when the opinion of a world authority has recently been expressed, to set it on one side is surely ill-advised.

W.A.S.

Natural History of the Phlox Family. Volume I: **Systematic Botany,** by **Verne Grant.** Pp. xv + 280, with frontispiece, 79 text figures, and 14 tables. Published by Martinus Nijhoff, The Hague, 1959. 19 guilders.

This volume, the first of two, consists in the main of a detailed but very lucid account of some of the extensive researches carried out by its author on the evolution of the Phlox family. The *Polemoniaceae* is a predominantly New World family of flowering plants, containing 18 genera and some 300 species, but with only one representative (*Polemonium caeruleum* L.), in the British Flora. In consequence, this work cannot have the same special interest for the reader in this country as it will for American botanists. Nevertheless, the principles concerned here are of universal application, and this book will be of considerable interest to all students of evolution in the flowering plants.

In this first volume are included a taxonomic survey of the *Polemoniaceae*, a section on the cytology of its members, including a discussion of karyotype evolution in the family, and an absorbing chapter on phytogeography, in which the present distributions of genera and species of *Polemoniaceae* are analysed in relation to the problems of their probable geographical origins, paths of migration, and Pleistocene history. The competance of the author with regard to each one of these distinct disciplines, taxonomy, cytology, and phytogeography, is evident throughout, and gives the chapters describing the author's conclusions with regard to phylogeny and evolutionary trends and directions within this family a sound foundation and an authority which is unusual in relation to a topic which is only too frequently the subject of insecurely based conjecture.

We have already a classic and unrivalled study of the evolution of a single genus of flowering plants in the work of Babcock and his associates on *Crepis.* In the book under review we have the first part of a notable attempt to cover the same ground for an entire family of plants, although inevitably not in the same exhaustive detail with regard to every individual species as was possible for *Crepis.* The value of this present volume will undoubtedly be very considerably enhanced when its companion volume, which is to describe the results of researches on the reproductive biology and genetic structure of members of the family, is published, and the appearance of this second volume will be eagerly awaited.

J.D.L.

Linnaeus' Species Plantarum Facsimile Vol. 2, with an Appendix by **J. L. Heller** and **W. T. Stearn.** Pp. xvi + 676 + 148. Ray Society: sold by Bernard Quaritch, 11 Grafton Street, London W.1. 1959. £3.

The second volume of this important work covers the fourteen classes from Didynamia to Cryptogamia together with the Linnean appendix and indices. As in the first volume the value of the work is much enhanced by the supplementary information which it includes. This is contained in an appendix which runs to 148 pages. An acquaintance with pre-Linnean literature is essential to understanding the *Species Plantarum* and J. L. Heller gives explanatory notes and full bibliographical details of all the authors and books cited by Linneaus as abbreviated references in that work. W. T. Stearn gives notes on the illustrations used in the two volumes and on four supplementary Linnean publications and the work concludes with an index to classes, genera and species in which all lectotypes of Linnean genera are marked and the works in which they were designated or accepted as such are indicated.

Having regard to the poor quality of the printing in the original the reproduction has been very successfully accomplished; indeed printers, publishers, editor and all concerned in the preparation of the work deserve unstinted praise. It is certainly one of the most important publications that the Ray Society has issued for it makes available again one of the great botanical classics and at the same time supplies all the esoteric information necessary to its proper understanding and use.

W.A.S.

Directory of Natural History and other Field Study Societies in Great Britain, edited by **Averil Lysaght.** Pp. 217. British Association for the Advancement of Science, for the Carnegie United Kingdom Trust; obtainable from The British Association, 18 Adam Street, Adelphi, London W.C.2. 20/- (21/6 post free).

This comprehensive work gives essential information about "all professional and amateur societies in England, Scotland, Wales and Northern Ireland that are concerned in any way with field studies". Archaeological, spelaeological, astronomical and meteorological societies and under-water swimming clubs are included as well as "societies with general interests," conservation organisations and county naturalists' trusts but sporting, commercial and medical societies are excluded as are those devoted to agriculture, horticulture and forestry. The result is a remarkable compendium of information ranging from the Royal Society and Nature Conservancy to the National Mouse Club, the Federation of Guppy-breeding Societies and the British Interplanetary Society. Natural History Societies form the largest section and the Yorkshire Naturalists' Union and its affiliated societies are well covered. After London, Yorkshire claims the largest concentration of societies and other items of information which emerge are that the Spalding Gentleman's Society which numbered Newton, Addison and Pope amongst its members is the second oldest society in England (ranking next to the Royal Society); that under-water swimmers are as bold in the north and midlands as in the south; and that subscriptions range from one London Society with a membership of twelve and an annual subscription of ten guineas to another with 2,000 members and an annual fee of two pence!

About 1,300 societies arranged under six subject headings are included and a geographical index and index of publications in addition to a general index facilitate easy reference.

W.A.S.

A Herbal of All Sorts, by **Geoffrey Grigson.** Pp. 92 with 4 plates and 19 illustrations. Phoenix House, London. 12/6.

It was recently stated that far too many books are now being published. This is one of those that we could well do without. *A Herbal of all Sorts* is certainly not a Herbal but it embraces all sorts. Stray thoughts on any point remotely connected with plants are here assembled in paragraphs. The author must have been perplexed on how to produce an orderly arrangement of such and finally decided on an 'alphabetical order' of paragraph headings. Thus if any reader wishes to know Mr. Grigson's opinion on the use of catkins in floral decoration he must look under A for the paragraph 'Against catkins'. One wishes that the text might have been more worthy of the high standard of production associated with Phoenix House.

G.A.N.

Instinctive Behaviour, edited by **C. H. Schiller.** Pp. 328, numerous figures. Methuen, London, 1959. 45/-.

Although published by Messrs. Methuen in this country, this compilation originated in the United States. This is significant because its fundamental purpose is to summarise the development of European ethology which has been principally in the hands of zoologists for the benefit of the Americans whose study of animal behaviour has been guided by experimental psychologists with an emphasis in recent years on physiological mechanisms.

The first paper translated is von Uexkull's pioneer monograph of 1934, somewhat naively entitled ' A Stroll through the Worlds of Animals and Men ' in which he develops the concept of the *umwelt,* a somewhat imprecise term which in the simpler animals is readily translated into their *perceptual world* but which in man and to a lesser degree in the higher vertebrates is that part of their totality of perception which is utilised in a defined and limited sphere of activity. This attempt to eschew any vestige of anthropomorphism in the interpretation of animal behaviour is perhaps valid in the simpler organisms (a much used example is the tick *Ixodes* which responds to the scent of butyric acid, a temperature of 37° C. and the tactile perception of hair) but where the perceptual range is infinitely wider, then the investigator's appreciation of it must inevitably become influenced by his own subjective responses and appreciations and thus be only partially valid. It is, however, essential that all the available sensory responses shall be explored in order that the pathway by which an animal learns may be utilised to explain both normal and artificially extended patterns of behaviour.

Further papers by Lorenz and Tinbergen expound early and recent attempts to rationalise instinctive behaviour but it is all too easy to raise the criticism that these derive from limited experiment and much rhetoric. This is inevitable in what is yet a new-born science and if this attempt to fuse the twin approaches in Europe and America is successful, then the application of causal analysis to a mass of inductive experimental data will take us much farther along the road to understanding. It is amusing, in this context, that Lorenz, in summation, discovers himself in the role of sorcerer's apprentice ' at the realisation that the growing complexity of our ideas will soon lead to completely intangible statistical, perhaps even to cybernetic methods '.

It is a great misfortune that Thorpe's ' Learning and Instinct in Animals ' eludes the bibliography by a matter of months. By and large, the translation which is mainly from the German, is very competently done. It is odd to find the Herring Gull emerging as the Silver Gull and the Chough as the Cornish Crow, similarly *Stercorarius sp.* has become Sea Hawk. These are minor faults in a work which has great potential value not least in this country where ethology is to a considerable extent an imported science. A.H.

Phoenix Re-born, by **Maurice Burton.** Pp. 224 with 15 plates and 26 text figures. Hutchinson, 25/-.

Under this provocative title Dr. Burton has given us an excellent down-to-earth treatise on bird behaviour. The treatment will appeal to naturalists as the musing of one who is saturated in bird lore, himself a practising naturalist and former Deputy Keeper of Zoology at the British Museum (Natural History). He believes that ' men do not invent legends so much as elaborate and enlarge . . . ' To some who do not agree it may be that the Phoenix will hardly enjoy another re-birth between the covers of this book; but to such readers the extravagant theme will perhaps serve like the thread hidden in the back and unobtrusively holding the pages together. The book has also a scientific theme; briefly that the modes of behaviour comprised in anting, basking and bathing are forms of sensuous experience of obscure but related origin, practised not exclusively by birds, initiated by various stimuli and often associated with salivation. So strange are some of the phenomena that the prototype was not accepted on the authority of Audubon nor of some other observers. The argument is interwoven with closely-observed experiences and beautifully illustrated with photographs and pleasing line-blocks. At times in the more speculative chapters and on reading of ' the characters . . . [of] the parrot with the size of the eagle, the tail of the pheasant . . . ' one may perhaps be forgiven for recalling Meiklejohn on ' Dissimulatrix spuria ' to which species the Phoenix seems to belong. Dr. Burton suggests, not too dogmatically, another, more oriental, identification. G.E.P.

The Ark in our Midst, by **R. S. R. Fitter.** Pp. 320, with 28 photographic illustrations. Collins, London, 1959. 18/-.

The title is the only imaginative thing about this book which is strictly concerned with additions to and positive modifications of the vertebrate fauna of the British Isles by the agency of man. This naturally begins with the Romans who are apocryphally credited with quite a few introductions but in fact the story must begin long ere this for many of the islands which now maintain populations of *Apodemus* must first have received them as human commensals. In the Shetlands and the Outer Hebrides they are the only small mammals to occur and in the post-glacial redistribution it is obvious that the voles would at least have shared their re-entry had it been by natural means.

Most of the deliberate introductions have been made for sporting reasons, from the rabbit to the gadwall, but the typically English desire to keep exotic animals in parks and other conditions of semi-liberty has been responsible for not a few additions to the fauna, especially of southern England and the ease with which they have become naturalised stems naturally from the various ecological niches which were left untenanted when the land-bridge finally disappeared before the European post-glacial climate had reached an equilibrium.

Mr. Fitter stresses the need for the continuous recording of changes due to introduction and it is clear that the work of compiling this account has been much impeded by the lack of documentation even in this century.

With 38 successful introductions and more than this number of ineffectual ones to deal with, the book is remarkably thorough. There is occasional error, as for instance where it is implied that the Brown Hare failed to establish itself in the Shetlands, but this is due to the inadequacy of recording and no doubt one of the many services which the work will do for British natural history is to elicit further information. E.H.

Tukani by **Helmout Sick.** Pp. 240, 40 photos. Burke, London, 1959. 25/-.

Hold that Tiger by **Sam Dunton.** Pp. 190, 63 photos. Eleck, London, 1959. 18/-.

Arctic Wild by **Lois Crisler.** Pp. 274, 60 photos. Secker & Warburg, London, 1959. 25/-.

A Beaver's Story by **Emil Liers.** Pp. 192, drawings in text. Hodder & Stoughton, London, 1959. 12/6.

The flow of popular literature with an animal basis is as copious and apparently popular as its television counterpart. It is also becoming equally documentary and authoritative, imagination retreating before the selective pressure of accumulated fact. All the books under review fall into this category though they are diverse in their origins.

Dr. Sick is a German zoologist who accompanied a Brazilian expedition into the unknown of the Matto Grosso and Para where, besides collecting zoologically, he extended a humane interest into the lives of the Indian tribes who are perhaps the last vestiges of uncontaminated primeval man. Dr. Sick understates the hardships and frustrations of such a task and his disciplined approach in no way diminishes the excitement of his story.

Hold that Tiger tells of another sort of jungle, that of the Bronx zoological gardens in New York City where the author has been staff photographer for many years. His anecdotes are equally authentic but the title betrays an attitude which thrives on sensation.

Arctic Wild on the other hand sees a pair of humans, man and wife, officially engaged in making a part of one of those incredibly skilful films of wild-life sponsored by the Disney organisation, privately engrossed in coming to friendly terms with wolves, reared from cubdom but trained to live their normal lives alongside, rather than dependent upon, their human companions. Mrs. Crisler writes with great sensitivity but without sentimentality and closes upon a sad note as the great human invasion of the American Arctic which created the DEW line begins its inevitable and inexorable devastation of the wild life there.

Emil Liers, whose previous *The Otter's Story* we have reviewed in earlier pages, now offers the life-story of a Beaver under the same dramatised formula. The anthropomorphism will appeal to children and it is the author's manifest intention to create an atmosphere and opinion favourable to conservation. I am sure he will succeed. A.H.

Footsteps in the Sand, by **David Harrison.** Pp. 256, 8 plates and numerous text illustrations. Ernest Benn, London, 1959. 25/-.

This book is all the more remarkable because it derives solely from the spare-time activities of a young man doing his National Service. Dr. Harrison is one of a family of enthusiastic naturalists and was therefore well-grounded in the technicalities of making the most of a sojourn in Arabia where he served with the Royal Air Force as a doctor. That Dr. Harrison went out accompanied with gun, traps and other devices for collecting made it possible for him to add very considerably to our knowledge of the Arabian fauna and, because his inclinations lie that way, especially of its bats and kindred small mammals, of which he has been able to describe several new forms and to add several others previously unknown from that part of the world.

Dr. Harrison's account is literal rather than literary but his enthusiasm is infectious and one has no difficulty in sharing his excitements. It is a modern shibboleth that exploration is virtually at an end and it is well that this should be corrected. That it can be done under such circumstances is highly creditable to the author and it is hardly surprising to find that he paid a physical toll which resulted in his efforts being prematurely curtailed.

A.H.

Earth's Envelope, by **Theo Lobsack.** Translated from the German by E. L. and D. Rewald. Pp. 256 with 16 pages of photographic illustrations and many text figures. Collins, 1959. 21/-.

This is an absorbing yet somewhat bewildering book, crammed with facts and theories concerning almost every aspect of the earth's atmosphere, past, present and future.

Part I consists of nine chapters devoted to the history of the atmosphere from the formation of the earth, including discussions on many of the phenomena which may be observed at the present time, e.g. optical phenomena, halos, coronae, sky colouration, mirages and also sound effects. The author illustrates his explanation of phenomena by homely examples which make his points clear. In Part II seven chapters are devoted to ' The Unresting Air ' in which weather forecasting, rain making and the varieties of fierce storms are discussed and analysed. The chapter on thunderstorms is particularly interesting and various theories are put forward, some of which must be largely pure suppositions. Part III with six chapters is entitled ' Man and the Air ' and ranges from the detailed composition of the air in connection with respiration by animal and plant life to the effects of atomic explosions and of radio-active particles.

The whole book is thought-provoking and raises many problems though some of the author's suggested explanations may be regarded as almost fantastic and would seem to be incapable of proof at present. The photographic illustrations and diagrams are good, and the book contains a bibliography of meteorological works chiefly German and American.

A.W.P.

Trees of Britain, by **Robert Gurney.** Pp. 228 with 18 photographs and 82 line drawings. Faber and Faber, 30/-.

This book can be highly recommended to any interested reader who has no botanical knowledge. The descriptions include all native trees and those introduced ones which are most likely to be seen in gardens. A few shrubs are also included. There are a few odd omissions such as Lilac and Weeping Willow though there is a photograph of the latter. On the other hand, *Metasequoia glyptostroboides* introduced as recently as 1947 is included.

After a short introduction the arrangement of families and botanical names follow with a few exceptions Dandy's recently published *List of British Vascular Plants.* There is a general description of each genus and species followed by a short (sometimes rather too short) detailed description in non-botanical terms of flower, leaf, fruit, seedling and winter buds. These are accompanied by the author's own excellent line drawings and these are perhaps the best part of the book. They should be valuable to botanists as well as to the general reader. In some cases there is a full page for each species while in other cases two species, not necessarily closely related, share the same page. This sometimes leads to omissions as in Box for which there is no illustration of the fruit nor even any reference to it in the text.

M.M.S.

Histochemical Technique, by **W. G. Bruce Casselman.** Pp. 205 with 121 diagrams. Methuen's Monographs on Biological Subjects. Methuen. 18/-.

The object of this book is ' to provide an introduction to the principles and practice of microscopical histochemistry, especially the chemical aspects, and to present a beginning selection of reliable techniques applicable to a variety of biological problems '. Dr. Casselman has achieved his aim very successfully. Following a general discussion of histochemistry, preparation of material and methods, an account is given of lipids, carbohydrates, nucleic acids, proteins, calcium, iron and enzymes. In each case there is a clear and brief description of the basic principles involved and the methods used. Every chapter has a good selection of references.

This is an excellent little handbook which will be of value both to the research worker and to the general reader who wishes to become acquainted with recent developments in the field of microscopical histochemistry.

E.R.

Our World and its Beginnings, by **Gustav Fochler-Hauke.** Pp. 352 with 15 plates and 77 text figures. Odham's Press Ltd. 30/-.

This is a work of scientific popularisation which expounds and interprets the findings of astronomers, geologists and biologists in terms intelligible to the layman. To survey the history of the world from its cosmic origin to the beginning of human times is a formidable undertaking for the factual information is very great in range and content, and is often uncertain in its interpretation. Although written primarily to enlarge the layman's knowledge of the world in which he lives, by recording the facts of organic and inorganic history and the explanations which have been advanced to account for them, most biologists and geologists will find some useful information on cognate aspects of their subjects as the treatment throughout is up to date. The author deserves congratulation on the very competent way in which he has covered so wide a field of knowledge; and the utility of this edition, prepared from a German text which first appeared four years ago, is enhanced by the technical supervision and advice which has been given to it in translation.

Film Strips: Wild Fruits 32 frames in colour (No. CX 6248) 27/6. **Nature in Autumn.** 31 frames in colour (No. CX 6246) 27/6. **Weeds of Cultivated Land** 30 frames in colour (No. CX 6261) 27/6. **British Reptiles and Amphibians.** 30 frames in colour (No. CX 6262) 27/6. With notes to each by Dr. J. H. Elliott. Educational Productions Ltd., East Ardsley, Yorks.

The photography in all these film strips is very good and the use of colour is of great help in facilitating identification. They have the advantage too of bringing together species which might not be simultaneously available on account of seasonal or geographical reasons. As teaching aids they are suitable for a wide range of age groups from juniors upwards, though their value is somewhat uneven.

The classification of *Wild Fruits* into harmless and poisonous types is useful but the inclusion of more of the vegetative parts, especially of the poisonous plants, would make identification simpler. *Nature in Autumn* is a delight to the eye and has certainly caught the rich variety of autumnal hues but it loses much of its value as a teaching aid by being so disjointed. There is no clear link between one picture and the next and it is difficult to discover the basis for selection as with some of the types chosen there seems to be no specific connection with autumn and the very familiar is intermingled with plants and animals so local that many are never likely to meet with them in the field. The active interest of a school child would be roused more easily if greater emphasis were placed on animal life and in particular on birds which are entirely omitted.

In *Weeds of Cultivated Land* both the selection and portrayal are beyond criticism and this strip should encourage active observation and study of the plants themselves as they are so readily available. As it is virtually impossible to have such a wide range of *British Reptiles and Amphibia* available at once, a film strip of this type is very useful in the classroom. It would perhaps have been better to arrange the sequence so that the familiar preceded the unfamiliar and a little more attention might profitably have been given to life histories.

The notes by Dr. Elliott, supplied with each film strip, contain all the information the teacher will require during the actual throwing, both for junior and for more advanced classes.

M.S.H.

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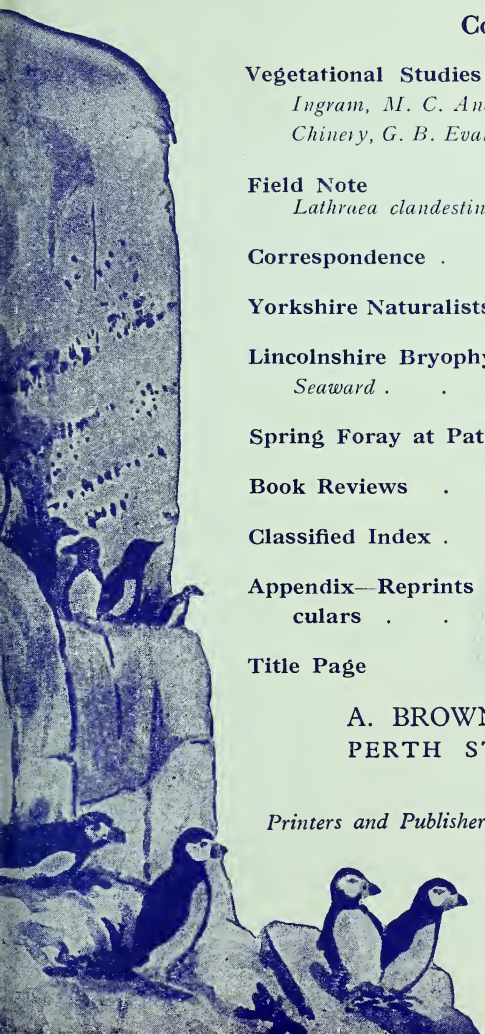

Contents

	PAGE
Vegetational Studies at Semerwater—*H. A. P. Ingram, M. C. Anderson, S. M. Andrews, J. M. Chinery, G. B. Evans and C. M. Richards* . .	113-127
Field Note *Lathraea clandestina* L. at Askham Richard .	127-128
Correspondence	128
Yorkshire Naturalists' Union Excursions in 1959	129-139
Lincolnshire Bryophyte Herbarium—*Mark R. D. Seaward*	139
Spring Foray at Pateley Bridge—*W. G. Bramley*	140-141
Book Reviews	141-144
Classified Index	145-148
Appendix—Reprints of Y.N.U. Excursions Circulars	I-XVI
Title Page	

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VEGETATIONAL STUDIES AT SEMERWATER

by H. A. P. Ingram, M. C. Anderson, S. M. Andrews, J. M. Chinery, G. B. Evans and C. M. Richards.

Various accounts of upland eutrophic mire vegetation in northern England have been published in the past thirty years. Notable among these are Pearsall's studies of the Esthwaite fens (in Tansley, 1939) and Holdgate's description of the vegetation of Sunbiggin Tarn (Holdgate, 1955). The present account is based upon a brief examination of the plant communities round the head of Semerwater, which seem

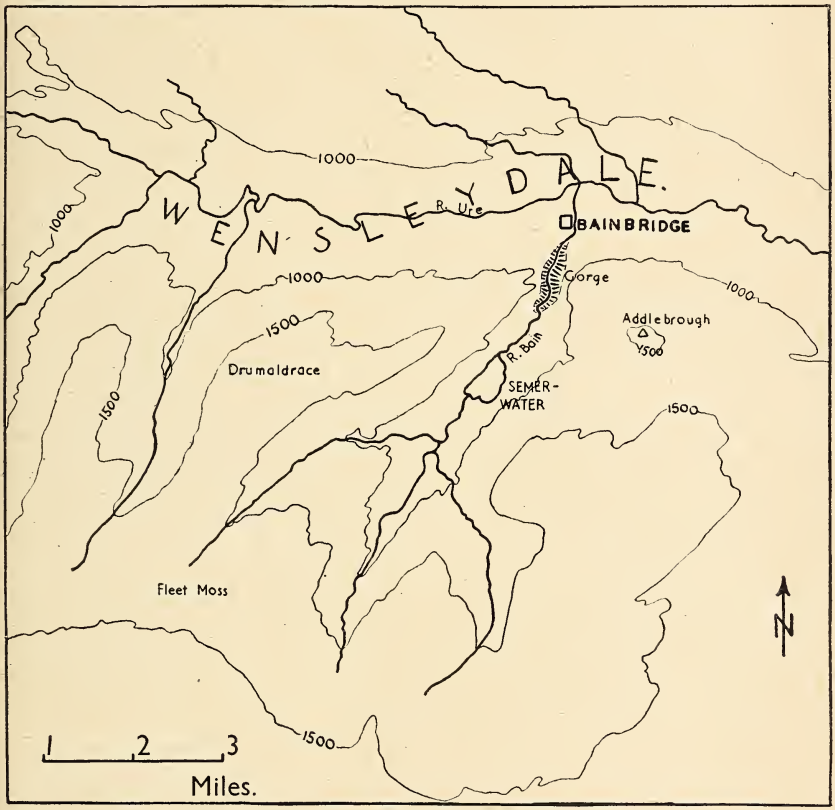

Fig. 1. Map of the district surrounding Semerwater.

to show some interesting features not apparent in similar localities already described. The account is arranged as follows:

Geographical and Historical Background

I. Local geography
II. Stratigraphy of delta
III. Recent history of delta

Vegetation

IV. Interpretation of pollen analyses: changes in the vegetation of the area
V. Recent vegetation of the marsh

Appendices

(a) Phytosociological data
(b) Apparatus for taking small bottom samples

Authorship; Acknowledgements; References.

I. Local Geography

Semerwater is a small lake or tarn lying in a tributary valley which enters Wensleydale from the south opposite Bainbridge (fig. 1). It is the largest fresh-water lake in the North Riding, with a maximum length (SW-NE) of about 700 yards, a maximum width of about 600 yards and a maximum depth, when not flooded, of approximately 30 feet. Its surface lies at about 830 feet O.D. The Yoredale facies of the Carboniferous Limestone Series forms high ground on three sides of the valley. The regional vegetation varies from blanket bog to calcareous grassland according to altitude and drainage. There are no extensive woods on the valley slopes.

The Air Ministry's published maps (Air Ministry, 1952) give some idea of the local climate. The temperature records from 1901 to 1930 show that at 1000 feet the average mean daily mean temperature exceeds 42°F. (the temperature above which plant growth generally occurs) from April to October inclusive. From 1901 to 1930 the average annual rainfall was between 50 and 60 inches, with an average monthly maximum of 8 inches in December, and a minimum of 3 inches in June. The average monthly mean relative humidity at 13 hours (1921-1935) reached a maximum of 80% in December and a miminum of slighly over 60% in June. Finally the average annual mean of the percentage of possible bright sunshine (1901-1930) was about 28%.

The glacial history of the area has been described by Raistrick (1926). Originally the waters of Raydale Beck and its tributaries ran uninterrupted down the valley to join the River Ure. The present-day topography is largely a result of the glaciation of the area. The Wensleydale valley glacier moving eastward was joined by a local glacier from Raydale. At the beginning of the melt, however, this tributary glacier retreated up-valley leaving a lake impounded alongside the Wensleydale glacier and its lateral moraine. Evidence for the former high levels of the lake is furnished by the occurrence of drainage channels, leading eastward, to the south of Addlebrough. At this stage the lake must have been about 500 feet deep, with its surface at about 1300 feet. When the ice eventually retreated up Wensleydale past the position of Bainbridge, the way was left open for the lake to drain away over the lateral moraine, thereby initiating its erosion. Channels along various courses at successively lower levels preceded the present outlet along the Bain valley. The gradual fall in water level exposed areas of silt round the tarn.

The main beck running into Semerwater from Raydale cut various channels through these deposits, and on entering open water the resulting load of sediment was deposited to form a delta at the head of the tarn. The trapping of the sediment was probably soon assisted by invading plants, and the continued encroachment of the delta upon the open water has helped to reduce the size of the tarn.

II. Stratigraphy of Delta

The more superficial postglacial deposits at Semerwater were investigated with a Hiller peat borer. Six cores, P to U (fig. 2) were taken along a line from the middle of the marsh to its northwestern edge. These revealed an upper stratum about one metre thick, mostly consisting of layers of sand and nekron mud. Beneath this, the cores P and Q, farthest from the old (1910) tarn edge, showed a continuous deposit of fine, black clay-mud, with frequent laminations 0·5 to 1 cm. thick and scarcely any visible organic remains. The cores nearer the old shoreline showed alternating bands of nekron mud, clay-mud, sand and shells, including *Pisidium hibernicum* Westerlund, *P. milium* Held and *P. nitidum* Jenyns, *Bithynia tentaculata* (L.), *Valvata cristata* Müller and *Lymnaea peregra* (Müller). At Malham Tarn, 1229 feet O.D. and 13 miles to the south, these species occur in shallow calcareous water with an abundant growth of charophytes (Stratton, 1956). None of them was collected alive at Semerwater, where the present bottom consists of sand or mud with few or no plants. The sub-fossil specimens may have been deposited in an inflow channel after silting or sandbank formation had reduced the scour of the current.

Evidence of the age of the sediments was given by pollen counts of a sample taken at a depth of 10·25 metres in core P. The tree pollen was mostly alder and oak, showing that the sample probably dates from or after the Zone VIIa/VIIb transition (Godwin, 1956), to which an age of about 5000 years has been ascribed by radiocarbon dating of deposits at Scaleby Moss near Carlisle (Godwin *et al.*, 1957). At the site of core P, therefore, about 10 metres of black clay-mud have accumulated in under 5000 years, which rapid rate of sedimentation conforms to the inorganic nature of

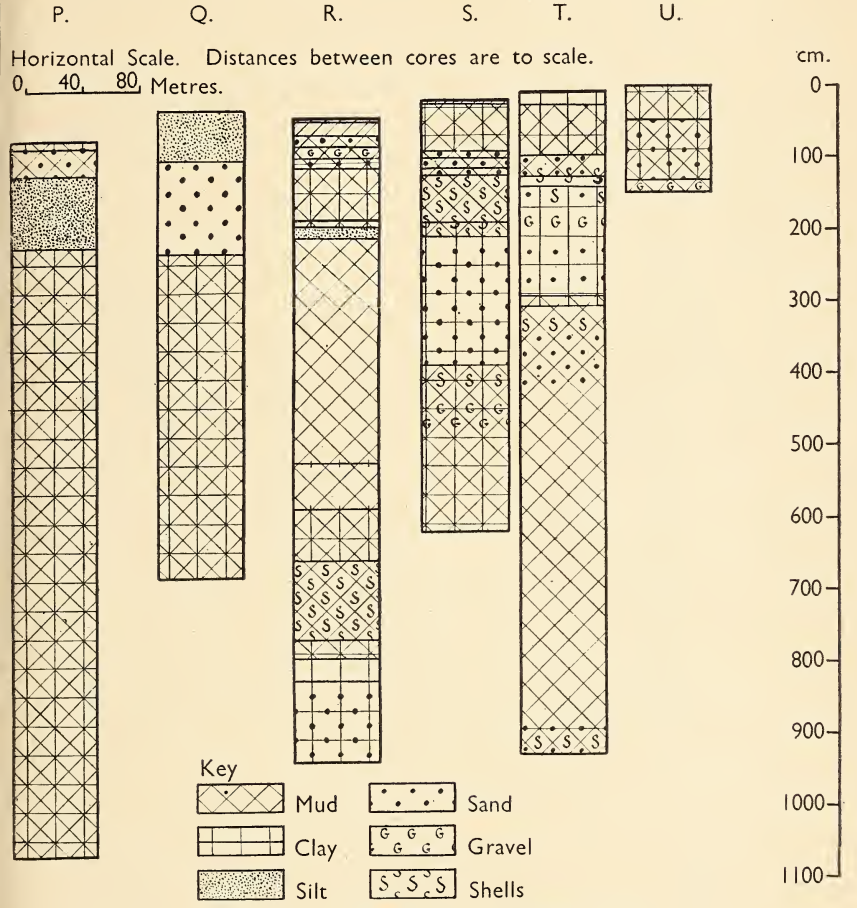

Fig. 2. Diagram to show stratigraphy of cores.

the deposit. The particles were presumably derived from the deeply cut, V-shaped valleys of the becks at the head of Raydale, and their small and uniform size suggests that they were deposited in open water.

The various deposits in cores R to U are organic remains, probably deposited *in situ* at the former edge of the tarn, mixed with debris washed down by floods. Periodic shifting of the inflowing streams would account for the many changes in the nature of the deposits.

The layers of sand and nekron mud in the top metre of all the cores are probably related to the recent artificial lowering of the water level in the tarn, which exposed the open water deposits at P and Q. These have since been covered by sand brought down by floods and by nekron mud formed by the decaying vegetation.

III. Recent History of Delta

Those parts of the delta farther from the tarn have been farmed by the Outhwaite family for several generations. The present farmer, Mr. Frank Outhwaite, kindly supplied much useful information, together with documents and aerial photographs concerning the recent history of the head of the tarn.

Attempts have been made for at least a hundred years to drain the marshes by means of dykes and ditches. The New Cut of 1870 caused the main inflow stream

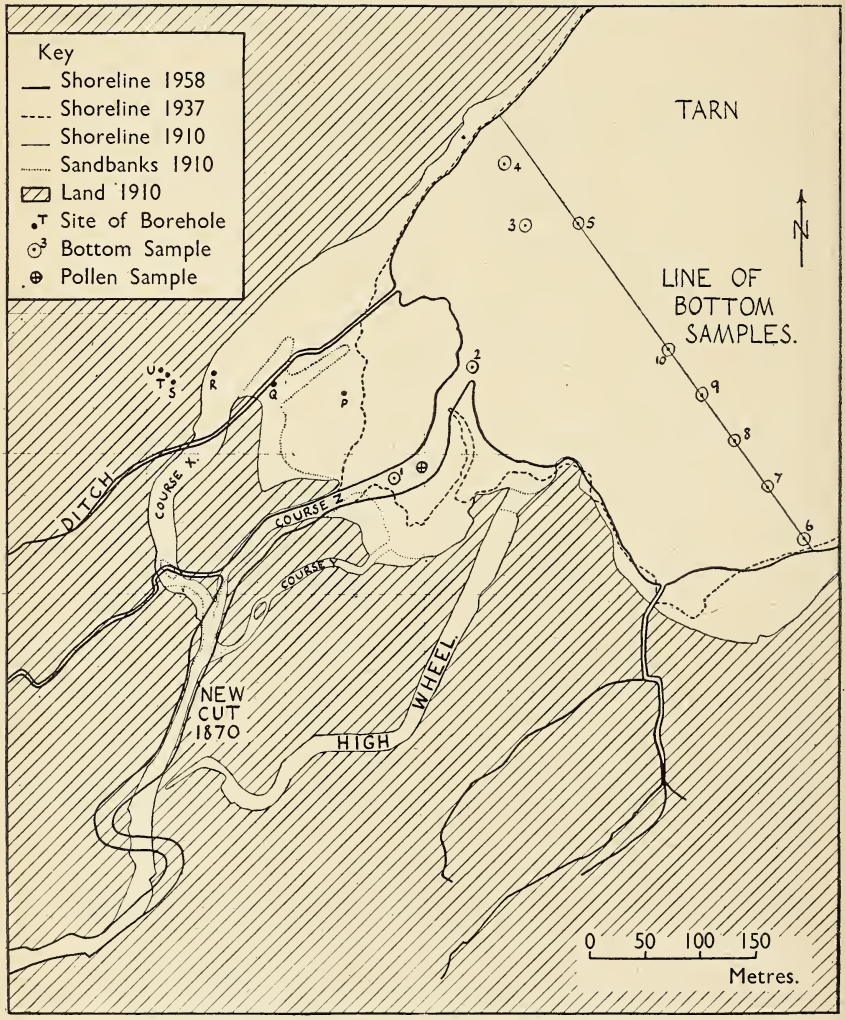

Fig. 3. Map to illustrate recent history of the delta.

to abandon High Wheel and continue along Course X (fig. 3) to form a sandbank at what was then the edge of the tarn. By 1910 this course had been silted up and blocked, and instead the stream ran along Course Y, which was similarly blocked by a sandbank: the stream having meantime found a new channel, Course Z. This is the present outlet, where sandbanks have continued to form to this day.

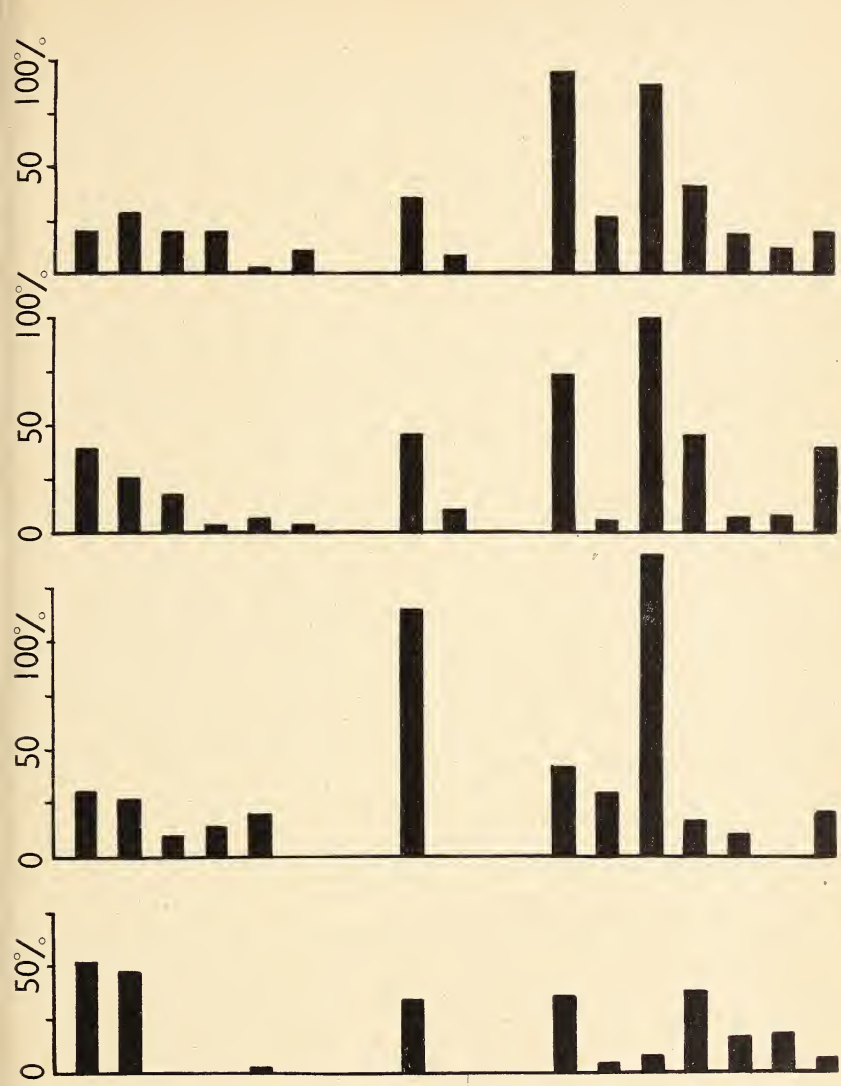

Fig. 4. Histograms of pollen frequencies at various sites, expressed as percentages of total tree pollen.

The maps and aerial photographs show that the delta extended between 1900 and 1937. Although there is no definite evidence regarding the cause of this, it probably resulted from progressive silting, rather than from any artificial change in water level.

Eventually Mr. Outhwaite realised that the results of digging ditches would never justify the effort unless the water level was also lowered. He proposed to achieve this by deepening the outflow of Semerwater along Low Wheel, which would reduce the level in the tarn itself. With the help of the aerial photographs, the Ministry of Agriculture was persuaded to subsidise this costly operation, and in 1937 the level was lowered 22 inches (55 centimetres).

This sudden change not only allowed the further drainage of the marshlands, but also exposed, round the head of the tarn, a margin of open water deposits up to 100 yards wide.

In the light of this historical record, the vegetation studied is believed to comprise areas of completely different ages:

(1) The oldest fen carr, where willows were planted in about 1700.

(2) The sandbanks, exposed shortly after the New Cut had resulted in Course X, and which were bare sand in 1900.

(3) The abandoned stream courses, such as High Wheel, dry since 1870, Course X, dry since 1900 or so, and Course Y, dry some unknown time later.

(4) The margin of the tarn, exposed in 1937.

The evidence obtained by digging soil pits and the stratigraphy revealed by the cores support this historical reconstruction and, in turn, this reconstruction supports conclusions drawn from the present distribution of the vegetation.

IV. Interpretation of Pollen Analyses: Changes in the Vegetation of the Area

Besides the sample from core P, three samples of modern material were analysed for pollen. Of these, two were taken from the bottom of the tarn (fig. 3: 7 and 8 on line of samples) using a modified Stempel pipette (Appendix b) while a third was taken from Crook's Beck, about 100 yards from its mouth, by supporting filter paper on wire gauze in the current for the 24 hours following the storm of 22 June, 1958. A similar sample taken before the storm contained too little pollen to justify counting and indeed grains were so sparse in the other three samples that only about fifty grains of tree pollen were counted in each case. This sparsity might be expected when dealing with essentially inorganic deposits.

Fig. 4 shows the frequencies of the various pollen types, expressed as percentages of total tree pollen. In the three modern samples elm and pine have reappeared so that all locally common tree species are represented. However, only a small proportion of the total count was tree pollen, which is to be expected from the scarcity of woodland in Raydale. The shrub pollen shows remarkably little *Salix* considering how much of the older marshes were covered by *Salix* carr, and similarly, among the herbs, the proportion of Cyperaceous pollen might have been expected to be higher than that of the Gramineae, since so much of the younger marsh was covered by almost pure stands of *Carex*. In contrast, the proportion of Ericaceous pollen is remarkably high. The insect-pollinated *Calluna* releases large quantities of pollen onto the ground at the end of its flowering period, and much of this, incorporated in the blanket bogs at the head of Raydale, is presumably being washed out now that these have started to erode (Pearsall, 1950). At the time when the sample from core P was deposited, however, these bogs were probably only just beginning to grow.

The proportion of herb pollen in the sample from core P is somewhat lower (150%) than in the modern samples (275%); but this figure is still high compared with other sites, and since it also includes some *Plantago* pollen, it suggests that there were open, dry-land communities nearby. Apart from these differences, however, the proportions of the various pollen types in all four samples are similar, which suggests that in the past 5000 years the vegetation around Semerwater has undergone little change, other than some decrease in the number of trees.

Comparison of the three modern samples shows an interesting similarity in composition, and implies that the pollen deposited in Semerwater is almost entirely washed down from the more distant parts of its drainage basin. The unexpectedly

low proportions of *Salix* and Cyperaceous pollen support the conclusion that the pollen counts reflect the vegetation of the valley as a whole. Most of the pollen from the immediate vicinity of the tarn is presumably swept down the Bain before it can settle.

V. Recent Vegetation of the Marsh

(i) General description of the vegetation.

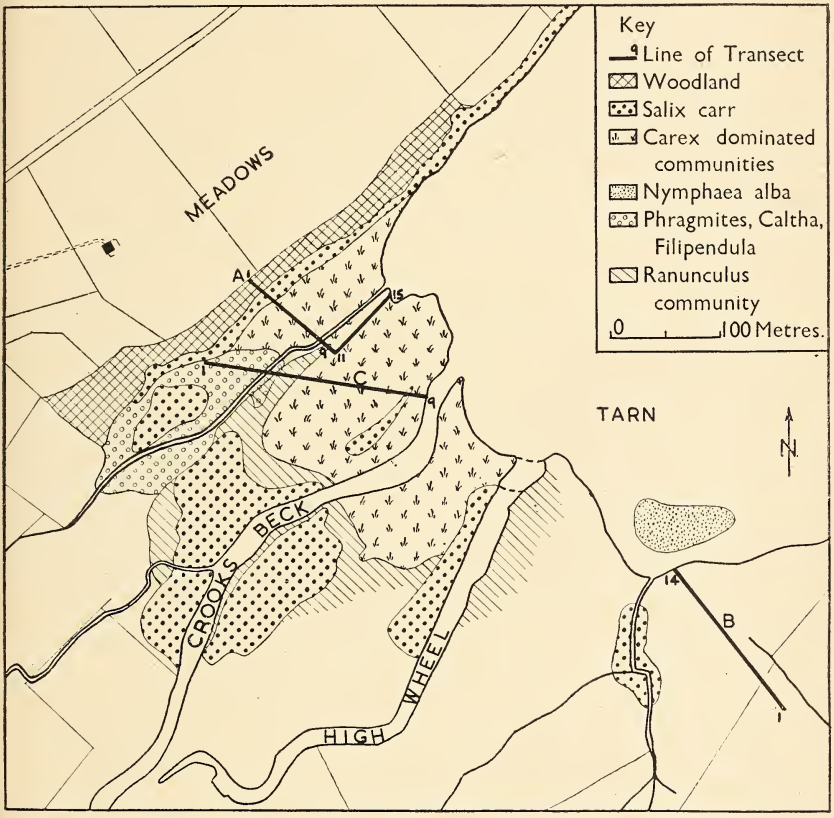

Fig. 5. Map to show distribution of main vegetation types at the head of Semerwater.

The map (fig. 5) shows the areas covered by the five main types of vegetation described:

(a) Fringing woodland
(b) *Salix* carr
(c) *Carex* marsh
(d) *Phragmites* reedswamp
(e) Aquatic vegetation

The vegetation of other parts of the marsh was not recorded. As the marsh was not accurately surveyed, the map is intended to indicate the spatial relationships of these vegetational areas, rather than their precise position and extent.

(a) Fringing woodland.

The northwest edge of the marsh is bordered by a narrow strip of woodland, on about 20 acres of well-drained, loamy soil (*p*H ca. 6·5) overlying a layer of rounded stones. The occasional occurence of *Acer pseudoplatanus* and varieties *laciniata* and

cuprea of *Fagus sylvatica*, suggests that the wood was planted, but no historical record of this could be found.

The following trees were also present: [The frequency abbreviations used in the lists are: a=abundant, la=locally abundant, f=frequent, lf=locally frequent, o=occasional, r=rare.]

Alnus glutinosa (L.) Gaertn.	f.	*Fagus sylvatica* L.	o.
Fraxinus excelsior L.	f.	*Quercus petraea* (Matt.) Liebl.	o.

The tree layer forms an open canopy with a cover of about 25%.

The herb layer is dominated by *Filipendula ulmaria* and occasional patches of *Urtica dioica*. The following species also occur:

Arrhenatherum elatius (L.) J. & C. Presl.	f.	*Crepis paludosa* (L.) Moench	o.
Conopodium majus (Gouan) Loret	f.	*Trollius europaeus* L.	o.
Geranium sylvaticum L.	f.	*Cirsium arvense* (L.) Scop.	r.
Ranunculus ficaria L.	f.	*Geum rivale* L.	r.
		Ranunculus acris L.	r.

At the lower edge of the woodland, where the ground becomes waterlogged, *Phalaris arundinacea* becomes frequent.

(b) *Salix* carr.

Areas of carr of different ages can be distinguished. Those shown on the map of 1912 have extended and several new areas have appeared, especially since the water level of the tarn was lowered in 1937. The strip of carr below the woodland on the northwest border of the marsh comprises a band of bushes, graded in height and presumably age, next to the woodland, succeeded by an even-aged stand of willows, 10 to 15 feet high, presumably dating from 1937. In this and other areas of carr the willows seem to be continuing to extend into the neighbouring marshlands. The following description applies to the carr below the wood; the more central areas showed a rather different composition, but were not studied in detail.

Of the willow species, *Salix pentandra*, *S. purpurea*, *S. atrocinerea* and *S. phylicifolia* were identified. There were certainly hybrids present, and probably other species which remained unnoticed. The soil is similar to that in the woodland, but with an overlying layer of peaty litter.

In the herb layer, *Filipendula ulmaria* is co-dominant with either *Phragmites communis* or *Phalaris arundinacea*. Other species present include:

Galium palustre L.	a.	*Myosotis caespitosa* Schultz	o.
Valeriana dioica L.	f.	*Poa trivialis* L.	o.
Crepis paludosa (L.) Moench	lf.	*Rumex* ? *crispus* L.	o.
Urtica dioica L.	lf.	*Arrhenatherum elatius* (L.) Beauv.	r.
Caltha palustris L.	o.	*Eleocharis palustris* (L.) Roem. & Shultz	r.
Cardamine amara L.	o.		

At the edge nearer the marsh *Carex acuta* begins to dominate the herb flora.

(c) *Carex* marsh.

Most of the area exposed by the 1937 lowering of the water level, and by the gradual silting up prior to that, now supports a heterogeneous collection of plants, dominated by various *Carex* species. Although different species dominate small patches throughout the area, these dominants do not seem to characterise separate communities. The same dominant occurs with different subordinate species in different parts of the area, and the same subordinate may occur in the presence of different dominants.

The soil consists of a surface layer of *Carex* litter over black nekron mud. Beneath this there is black silt, which in some slightly raised places gives way to layers of coarse sand, representing sandbanks around the former mouths of the inflow streams. The water level varies from 10 centimetres below the soil surface to about 15 centimetres above it.

Carex rostrata and *C. vesicaria* are both dominant over large areas, either separately or together. *Carex vesicaria* dominates small patches in the wetter part. Areas where a layer of sand beneath the soil gives better drainage are characterised by the dominance of *Eleocharis palustris*, and parts of the tarn margin are dominated by *Equisetum fluviatile*, which occurs at low frequency over the whole area. *Caltha*

palustris and *Myosotis caespitosa* show a similar consistent low frequency (*ca.* 5% cover) but neither achieves dominance. Other species present are:

Agrostis stolonifera L.	f.	**Cerastium vulgatum* L.	r.
Galium palustre L.	f.	*Deschampsia caespitosa* (L.) Beauv.	r.
Mentha aquatica L.	f.	*Equisetum palustre* L.	r.
Cardamine amara L.	o.	*Filipendula ulmaria* (L.) Maxim.	r.
C. pratensis L.	o.	*Poa annua* L.	r.
Crepis paludosa (L.) Moench	o.	*P. pratensis* L.	r.
Glyceria fluitans (L.) R.Br.	o.	**Potentilla anserina* L.	r.
Lychnis flos-cuculi L.	o.	*P. palustris* (L.) Scop.	r.
Orchis purpurella (T. & T.A. Steph.)	o.	*Ranunculus flammula* L.	r.
Phalaris arundinacea L.	o.	*Rumex acetosa* L.	r.
Ranunclus repens L.	o.	**Senecio aquaticus* Hill	r.
Carex nigra (L.) Reich.	o-r.	**Taraxacum laevigatum* agg.	r.
Menyanthes trifoliata L.	r (la).	**Trifolium pratense* L.	r.
[1] *Achillea ptarmica* L.	r.	*Valeriana dioica* L.	r.

[1] Limited to slightly raised areas over former sandbanks.

(d) *Phragmites reedswamp.*

A zone of *Phragmites* swamp occurs around the former mouth of Course X. The upper layers of the soil are here almost entirely organic, consisting mainly of *Phragmites* detritus, and submerged beneath anything up to 20 centimetres of water. A small stream draining the pastures at the side of the valley enters the marshes at this point.

Phragmites is dominant throughout, apart from a belt of *Filipendula ulmaria* in the transition to the fringing strip of carr. *Caltha* is very abundant and a constant sub-dominant. Other species are:

Myosotis caespitosa Schultz	a.	*Mentha aquatica* L.	o.
Cardamine amara L.	f.	*Poa* sp.	o.
Carex rostrata Stokes	f.	*Ranunculus repens* L.	o.
Equisetum fluviatile L.	f.	*Valeriana officinalis* L.	o.
Galium palustre L.	f.	*Veronica beccabunga* L.	o.
Phalaris arundinacea L.	f.	*Carex acuta* L.	o.
Agrostis stolonifera L.	o.	*C. acutiformis* Ehrh.	o.
Epilobium palustre L.	o.	*C. vesicaria* L.	o.

(e) A large patch of *Nymphaea alba* floats in shallow water about 4 feet deep off the southeast shore of the tarn. Other aquatic vegetation is sparse and was not studied in detail.

(ii) The transects.

Three transects, A, B, and C (fig. 5), consisting of a series of one metre square quadrats, were layed out across the marsh. The cover and abundance of the species within the quadrats was recorded using the Domin scale, and along A and B levels were taken. Fig. 6 shows the profiles of the surface levels along transects A and B with the positions of the quadrats marked. For transect C the distance between the quadrats is shown but the levels were not recorded. The histograms show the variation in number of species recorded along each transect. Fig. 7 shows individual histograms of the Domin numbers of selected species on each transect. The species were chosen either as showing a high Domin number at some point, or because they occurred in a large number of quadrats. The three sets of histograms are not directly comparable, but show, for three different places, the general changes in the vegetation from the marsh margin towards the present edge of the tarn.

(a) Fluctuations in the total number of species along the transects.

The total number of species at any point seems to be controlled by two main factors: tree cover and water level. Transect B has no trees and shows a steady decrease in number of species as conditions become wetter towards the tarn. Quadrats B3, 4 and 5 cover a wetter area where drainage is impeded; these conditions are reflected by a dip in the histogram of total species as well as by the presence of *Menyanthes trifoliata.*

Transects A and C resemble each other, as might be expected since they are in the same part of the marsh. Both start under tree cover with a small total of species

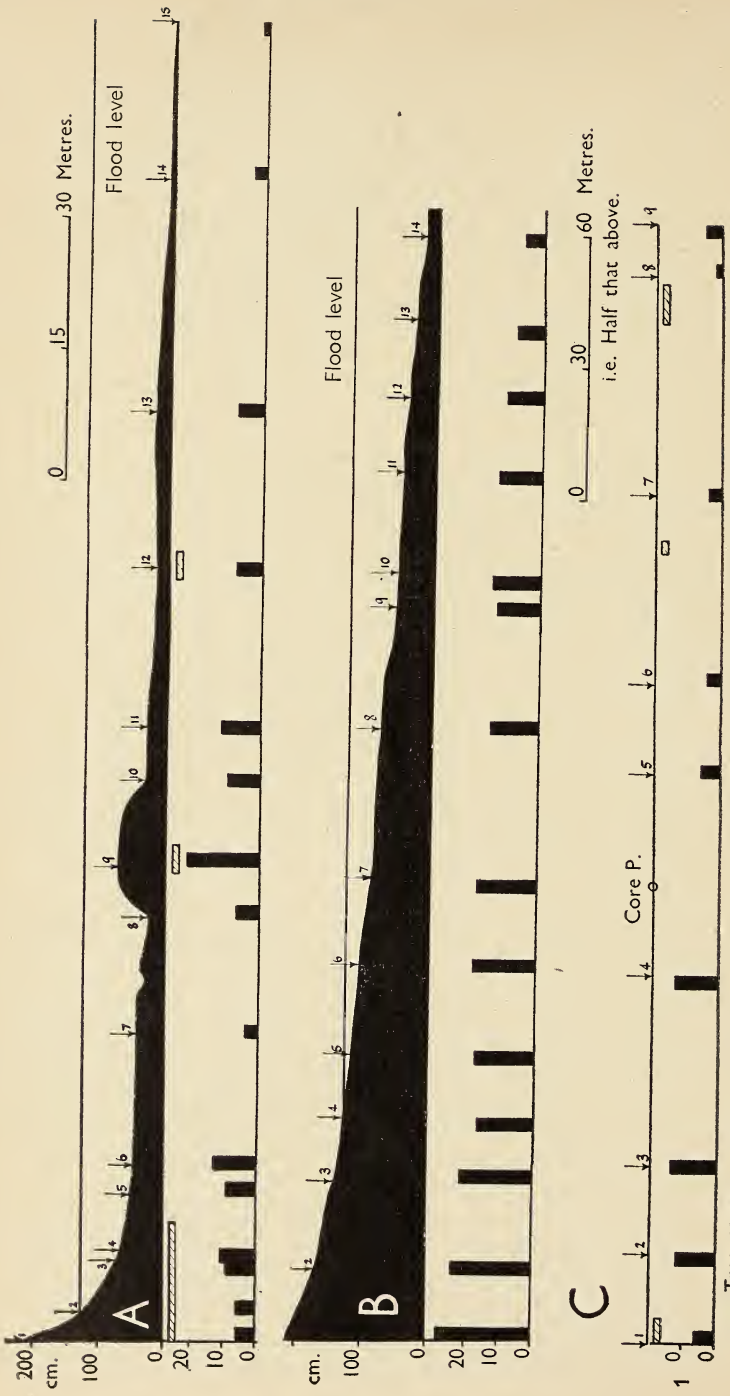

Fig. 6. Diagram of transects, showing (i) profiles (A and B only), (ii) positions of quadrats (arrowed), (iii) histograms of total number of species in each quadrat, (iv) extent of tree cover.

which rises as open ground is reached and then declines again as the transects pass into the *Carex* area and approach the tarn. At A9 the soil is slightly raised and its drainage improved by the presence of a buried sandbank, which coincides with a sudden increase in the total number of species. C4 is on the edge of the same sandbank and shows a similar effect. A comparison of A7 and B12, quadrats at approxi-

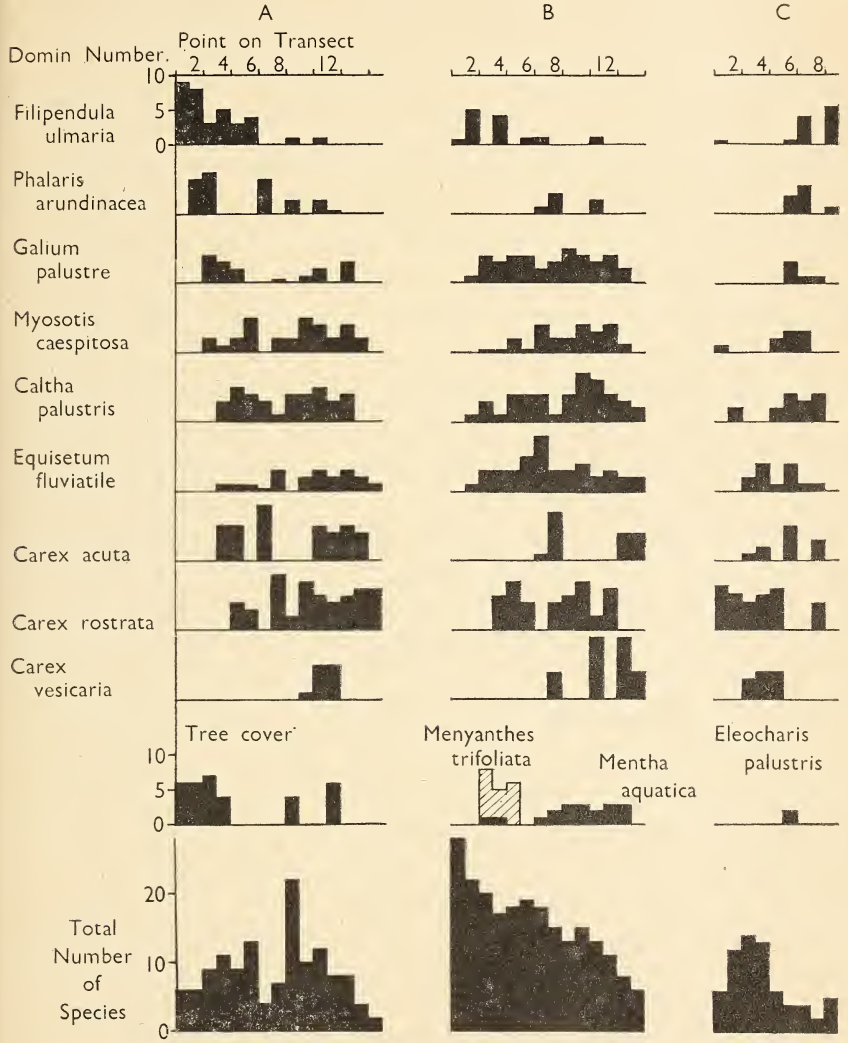

Fig. 7. Histograms of Domin numbers (see Appendix (a) for explanation) of selected species, and of total number of species, along the three transects.

mately the same level and both unaffected by tree shade, shows no direct correlation in the number of species.

(b) Variations in the frequency of individual species along the transects.

It is difficult to detect any general trends in the behaviour of particular species. Most plants show a patchy distribution and very variable frequency, apparently

quite unrelated to level. *Caltha palustris, Equisetum fluviatile, Galium palustre* and *Myosotis caespitosa* all occur more or less constantly but with variable frequency. The behaviour of *Carex* species differs on the three transects. Whereas on transect A *Carex rostrata* shows an increase in frequency towards the tarn edge and *C. acuta* and *C. vesicaria* occur further from the shore, the position is reversed on transect B. Here *Mentha aquatica* shows a definite association with the wetter parts. It occurs in an area dominated by *Menyanthes* (B3, 4 and 5) and again at the lower end of the transect. Although *Mentha* occurs scattered over the whole marsh, it does not appear in any of the quadrats on A or C, so comparison is impossible.

Transects A and C resemble each other more than either resembles B. The flora of the upper part of B, especially the presence of species such as *Eriophorum vaginatum* and *Nardus stricta*, suggests that conditions here are considerably more acid than on the opposite edge of the marsh, probably due to the presence of an area of silicious glacial drift. Unfortunately *p*H readings are only available from A, but it seems likely that a gradient of increasing *p*H follows the decline in level in at least the upper part of B, while in A, the readings lie between *p*H 6·2 and 7·5, showing slight fluctuations throughout the length of the transect.

(iii) Phytosociological data.

Results from a number of minimal area quadrats are shown in a table in appendix (a).

(iv) Discussion.

The uneven distribution of the species and the lack of any well-defined series of communities on the *Carex* area are indications that this part of the marsh is relatively young and has not yet reached a state of equilibrium with its environment. The attainment of this equilibrium must be retarded by the frequent flooding to which the area is subjected: for example, the flood of 22 June, 1958, when the tarn water level rose 130 centimetres, submerging the whole *Carex* area and most of the ground beneath the carr.

The *Phragmites* swamp possibly remains as a relic of a former stream mouth or tarn edge community, its survival assisted by the supply of inorganic salts from the small stream which runs through the area.

Appendix (a)
Phytosociological Data

The table below summarises the data obtained from 17 stands distributed over the marsh. The numbers are those of the Domin cover-abundance scale(9: 75%-100%; 8: 50%-75%; 7: 33%-50%; 6: 25%-33%; 5: abundant, cover about 20%; 4: abundant, cover about 5%; 3: scattered, cover small; 2: very scattered; 1: scarce; +: isolated).Dominants are marked with an asterisk (*). The "minimal area" is the smallest area of the stand in which all or nearly all of its species are represented.

STAND NUMBER	1	2	3	11	4	7	5	6	17	15	16	10	9	8	14	12	13
MINIMAL AREA	2	2	4	2	1	4	1	4	2	1	4	1	2	2	1	1	1
Carex rostrata Stokes	7*	6*	5*	2	3	1	3	2	–	2	2	3	3	3	1	–	–
Carex vesicaria L.	–	–	–	–	8*	6*	8*	7*	4	1	–	–	1	–	–	1	–
Eleocharis palustris (L.) Roem and Schult.	–	–	–	1	–	–	–	2	6*	6*	6*	–	–	–	3	–	–
Carex nigra (L.) Reich.	–	–	–	8*	–	–	–	–	3	2	3	–	–	–	3	–	–
Phragmites communis Trin.	–	–	–	–	–	–	–	–	–	–	–	5	8*	7*	–	3	3
Caltha palustris L.	–	+	2	–	4	2	4	–	3	4	3	6*	7	7*	–	–	–
Filipendula ulmaria (L.) Maxim.	–	–	–	1	–	+	–	–	1	–	–	2	+	–	–	9*	9*
Myosotis caespitosa Schultz	1	+	+	4	2	2	1	1	4	1	4	6	4	6	3	–	–
Equisetum fluviatile L.	1	2	4	2	3	2	1	2	4	2	5	1	2	1	–	–	–
Galium palustre L.	–	–	1	3	1	1	2	2	2	1	3	1	2	2	4	–	–
Phalaris arundinacea L.	+	2	5	3	1	1	–	–	–	–	–	–	–	–	2	–	–
Mentha aquatica L.	–	–	2	2	1	1	3	–	–	–	–	1	–	1	–	–	–
Agrostis stolonifera L. var. *palustris*	–	–	–	–	4	4	–	5	–	–	–	–	1	–	–	–	–

STAND NUMBER	1	2	3	11	4	7	5	6	17	15	16	10	9	8	14	12	13
MINIMAL AREA	2	2	4	2	1	4	1	4	2	1	4	1	2	2	1	1	1
Cardamine pratensis L.	–	–	+	2	2	3	–	4	–	1	1	–	–	–	3	–	–
Ranunculus repens L.	–	–	–	1	2	3	2	–	1	6	+	1	–	–	–	–	–
Glyceria fluitans (L.) R.Br.	–	–	–	–	–	–	–	3	+	2	–	–	–	–	–	–	–
Acrocladium cuspidatum (Hedw.) Linb.	–	–	–	–	–	×	–	–	×	×	×	×	–	–	×	–	–
Poa trivialis L.	–	–	–	–	–	–	–	–	2	2	1	1	2	–	2	–	–
Cardamine amara L.	–	–	–	–	–	–	–	–	2	3	3	1	3	3	–	1	2
Epilobium palustre L.	–	–	–	–	–	–	–	+	–	–	1	1	1	2	–	–	–
Carex acuta L.	–	4	–	–	–	1	–	3	–	–	–	–	1	–	–	–	–
Senecio aquaticus Hill	–	–	–	1	–	–	–	1	–	1	–	–	–	–	1	–	–
Lychnis flos-cuculi L.	–	–	–	–	–	–	–	1	–	–	+	–	–	–	2	–	–
Equisetum palustre L.	–	–	–	–	–	+	–	–	–	–	2	–	–	–	4	–	–
Rumex crispus L.	–	–	+	–	–	+	–	–	+	–	–	–	–	1	–	–	–
Potentilla anserina L.	–	–	–	–	–	–	–	1	2	–	–	–	–	–	–	–	–
Crepis paludosa (L.) Moench	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–
Stellaria sp.	–	–	–	1	–	–	–	–	–	–	–	–	–	–	2	–	–
Cerastium vulgatum L.	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–
Ranunculus flammula L.	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–
Festuca ovina L.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–
Holcus mollis L.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–
Eriophorum angustifolium Honck.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–
Valeriana officinalis L.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
Angelica sylvestris L.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
Veronica beccabunga L.	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–
Salix sp.	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–
Deschampsia caespitosa (L.) Beauv.	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–
Poa pratensis L.	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–
Geum rivale L.	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–
Achillea ptarmica L.	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–
Menyanthes trifoliata L.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	8*	–	–
Acrocladium cordifolium (Hedw.) Rich. & Wall.	–	–	–	–	×	×	–	–	–	–	×	–	–	–	×	–	–
Mnium affine Bland.	–	–	–	–	–	×	–	–	–	×	–	–	–	×	×	–	–
Marchantia polymorpha L.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	×	–	–
TOTAL No. OF SPECIES	4	6	9	13	12	20	8	16	16	18	19	13	13	12	20	3	5

The presence of bryophytes is indicated by the symbol "×".

Appendix (b)

Apparatus for Taking Small Bottom Samples

A modified Stempel pipette was used to obtain samples from the surface of the tarn bottom. The apparatus (fig. 8) was made in the Botany School workshop by Mr. K. Marr, following a suggestion by Dr. R. Bainbridge of the Zoological Laboratory. The body of the instrument was a stainless steel tube in which a spring-loaded plunger moved. The lower end of the tube was closed by a polythene seal when the spring was released. In use, the apparatus was suspended from a boat by wire, and set by compressing the spring until the trip lever engaged with a 1/16th inch ledge on the disc moving in the upper part of the body. The instrument was then lowered to the bottom, where it rested on three air-filled stabilising tanks made from floor polish tins. The sample was collected by sliding a messenger weight down the suspension wire to actuate the trip lever.

Authorship

The seven main sections of this account were compiled as follows: I: J. M. Chinery; II, IV and Appendix (b): Miss M. C. Anderson; III: G. B. Evans; V and

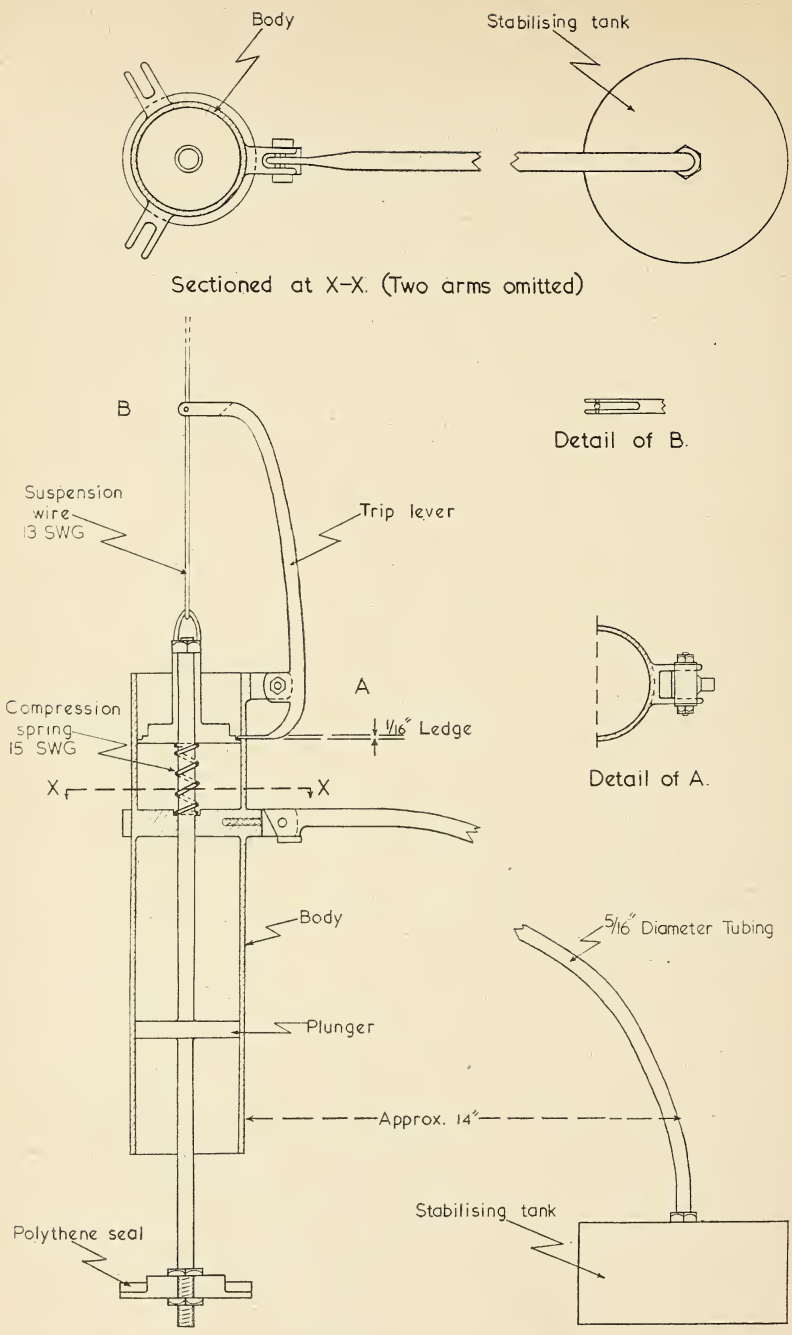

Fig. 8. Diagram to show construction of modified Stempel pipette.

Appendix (a): Miss C. M. Richards. The figures were prepared by Miss S. M. Andrews and the account was edited by H. A. P. Ingram.

Acknowledgements

The information presented here was collected in June, 1958, by a party from the Botany School, Cambridge, led by Dr. D. Walker and Dr. R. G. West, assisted in the field by Dr. D. Ashton (Melbourne University), Dr. G. M. Butler and Mr. G. Halliday, and by the following undergraduates: Miss W. S. Allen, Miss J. M. Chorley, J. L.-D. Cusden, Miss R. H. Gregory, W. D. Hamilton, J. C. Hudson, J. A. H. Leonhardt, Miss K. E. Luck and R. M. Polhill. Mr. B. W. Sparks of the Department of Geography identified the *Pisidia*. Miss C. Lambert assisted in the pollen analysis.

The authors wish to thank all those who have helped, and especially Mr. Frank Outhwaite for allowing the party to work on his land, and for providing so much information.

Postscript

The marsh was revisited by a member of the party in September, 1959. Owing to the summer drought the marsh was completely dried out, but changes in the vegetation not attributable to the drought were also noticed; certain dominants had spread and others were being replaced.

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FIELD NOTE

***Lathraea clandestina* L. at Askham Richard.**—For some years specimens of this plant have been included in the herbaria required to be made by students of Askham Bryan Agricultural College, but apparently without being named. This year one of the students took me to the site to identify the plant. It was then thought to be in the grounds of the open prison for women, but on a later visit it was ascertained that, although almost within the prison grounds, it was in fact in Parson's Wood, a large untended woodland with undershrubs behind the Vicarage.

The species is stated by Clapham, Tutin and Warburg to be parasitic on the roots of willows and poplars, but it also parasitizes other trees, elm and beech for example. The plants at Askham Richard were around the foot of a large *Populus marilandica* and as the thirty-odd groups of plants extended over an area some 60 ft. in diameter with from 800 to 1,000 blooms it was obvious that they were long established and enquiries were made as to their origin.

Contact was eventually made with Mrs. M. H. Wailes-Fairbairn who lived at Askham Grange until it was taken over by the War Office in 1939 for use as a military hospital and later became the women's prison. She has kindly searched her records and writes that plants were brought from the family estate at Bath about 1919 and ' a little piece given to the parson '. This ' little piece ' is obviously the origin of the plants in question and there may be more within the prison grounds. Permission to visit these was not granted.

The occurrence of this plant at Askham Richard is of interest in that the species has seldom previously been recorded in Britain. Previous records are:

V.C. 26, W. Suffolk; Livermere Park. ' On roots of elm, etc., and has been known there for sixteen years . . . planted by Lady de Sausmarey.' G. C. Druce, *Rep. B.E.C.*., 506, 1910.

V.C. 33, E. Gloucester; in Cheltenham town. *Bot. Soc.* and *Exch. Cl.*, **13,** 306, 1948.

V.C. 82, E. Lothian; Haddington, destroyed in 1948 floods. *B.S.B.I. Proc.*, **2,** 377, 1957.

The species is, of course, also grown in various botanic gardens and has this year turned up on roots of *Salix alba* var. *caerulea* at the Cottingham Botanic Garden of Hull University, ' probably from Cambridge ' (personal comm. Prof. R. D'O. Good). The violent discharge of the seeds from the ripe capsules, which no doubt accounts for the ability of the plant to spread, is referred to in *Rep. B.E.C.*, 1924, 448 (1925) where a discharge to 27 feet is reported, and this was impressively confirmed by the Askham Richard plants, when slight pressure was exerted on the ripe fruits.—G. A. Nelson.

CORRESPONDENCE

INLAND BREEDING OF GREATER BLACK-BACKED GULL

Dear Sir,

The supposition under ' Field Note ' in your issue for July-September, 1959, that the breeding of odd pairs of this species in recent years among the Lesser Black-backed Gulls in the well-known gullery some 12 miles from the Lancashire coast ' appear to be the first instances on record of breeding inland in Britain ' is incorrect. I photographed *Larus marinus* breeding by inland Scottish lochs in 1913 and 1920; and the species was then also known to breed by other inland lochs and by some inland loughs in Ireland. In England and Wales the Greater Black-backed Gull has bred inland in ' several coastal counties '—a category to which both Lancashire and Yorkshire belong. *The Handbook* even says ' sparingly on mosses in Westmorland and Cumberland ' into which general area this gullery fits, although in Lancashire with a slight spread into Yorkshire.

C. Oakes, in *Birds of Lancashire*, suggests this gullery, established in 1938, was 'probably colonised owing to intense persecution at Foulshaw ' where a big colony of Lesser Black-backs had long been known. Whether any Greater Black-backs ever bred at Foulshaw I do not know, but it is quite probable. C. F. Archibald took eggs of Greater Black-back on the fells near Rusland in 1889. In this new Pennine gullery a pair of Greater Black-backs nested in 1949.

Yours, etc.,
Ralph Chislett.

Dear Sir,

A careless statement under this heading (No. 870, p. 98) could have been avoided by some reference to regional or county works. Several instances of inland breeding are recorded in the Lakeland publications alone.

In 1909, a pair nested on the Gilsland Moors in North Cumberland, twenty miles inland even from the head of the Solway. Their three eggs are in Carlisle Museum. See *Lakeland Ornithology* or *Trans. Carlisle N. H. Soc.*, 8 (1954).

Up to 1909 a pair bred for many years at a tarn in Finsthwaite, High Furness, five miles up country from the Leven estuary. See *The Birds of Lakeland* or *Trans. C.N.H.S.*, 6 (1943).

Until towards the end of the 1870's a famous colony, comprising up to fourteen pairs, bred for a known period of half a century at Devoke Water, five miles from the nearest coast, in South-west Cumberland. See Macpherson, H. A. (1892), *A Vertebrate Fauna of Lakeland.*

Prior to 1829, a pair occupied a rocky island in the middle of Ennerdale Water, eight and a half miles inland. See Macpherson, H., A. and Duckworth, William 1886), *The Birds of Cumberland.*

Yours, etc.,
Ernest Blezard,
Carlisle Natural History Society.

[By an oversight the note referred to in these letters was not sent to our Ornithological referee before acceptance.—Ed.]

YORKSHIRE NATURALISTS' UNION EXCURSIONS IN 1959

KIRBY MOORSIDE, V.C. 62, Whitsun., May 16th—18th

In spite of Whitsun coming so early in the year, the spell of warm weather beforehand had brought on the vegetation and everything was much more forward than had been expected. Perfect weather and attractive scenery added much to the enjoyment of those attending.

The divisional secretary, Mr. I. C. Lawrence, was helped by Mr. T. Scaling and they had chosen three different types of country for the three days. In Sleightholmedale the middle part was visited; here was much felled and replanted woodland, some mature woods and riverside grassland. The ground was calcareous but not to the same extent as the lower part of Douthwaitedale where the party was taken on Monday. On Sunday the part of Riccaldale investigated was decidely more acid, with the exception of one very attractive bit of calcareous grassland early in the day.

At the meeting held on the Monday evening reports on the work of the different sections were presented; 36 new members were elected and votes of thanks to the landowners, and the divisional secretary and Mr. Scaling were moved. Thirty-eight members representing 17 affiliated societies were present at the meeting.

Ornithology, (R. Chislett): The areas explored were the wooded, parallel valleys of the Riccal, Hodge (Kirkdale—Sleightholmedale), and Hutton becks. A brief visit to the moorland regions above added Kestrel, Red Grouse, Snipe, Curlew and Grey Wagtail to the list.

The Fadmoor heronry showed fine nests with young. Cuckoos and Green Woodpeckers sounded frequently, the Great Spotted Woodpecker being less noticeable. Several parties of Long-tailed Tits, with young on the wing, were seen. Dippers and Chiffchaffs were scarce but Wrens numerous, as were Tree-pipits, Redstarts and Pied Flycatchers. Warblers included Willow, Wood, Garden, Blackcap and Whitethroat. Spotted Flycatchers had probably not all come yet. Bullfinches occurred. Other species, to a general total of 54 species included Mallard, Partridge, Pheasant, Lapwing, Wood-pigeon, Tawny Owl, Swift and Swallow in fair numbers, House-Martin (scarce), Carrion Crow, Rook, Jackdaw, Jay (one), Great and Blue Tit, Tree-Creeper (scarce), Mistle and Song Thrushes, Blackbird, Robin, Goldcrest (several), Dunnock, Meadow-pipit, Pied Wagtail, Greenfinch, Linnet, Chaffinch and Yellowhammer.

Mammals. Odd Hares and Rabbits, and a Red Squirrel were noted. A Badger sett was evidently occupied from the evidence of a heavily scratched lower bole. Mole hills were not too numerous. A common Lizard and two dead Slow-worms were noted.

Lepidoptera (F. Hewson); Almost all the species expected were seen. The best capture was one *Hamearis lucina* L. (Duke of Burgundy Fritillary) by Dr. H. Henson. Although common at Haugh Rigg, Pickering, it is uncommon elsewhere. On Hutton Common *Argynnis euphrosyne* L. (Pearl-Bordered Fritillary), *Erynnis tages* L. (Dingy Skipper) and *Coenonympha pamphilus* L. (Small Heath) were numerous. One male *Euchloe cardamines* L. (Orange Tip), one *Phytometra viridaria* Clerck (Small Purple Barred) (Mrs. J. Payne), one *Euclidimera mi* Clerck (Mother Shipton) and one *Ectropis crepuscularia* Huebner (Small Engrailed) were taken. Two *Lycaena phlaeas* L. (Small Copper) were seen by Mr. D. F. Walker. *Aglais urticae* L. (Small Tortoiseshell) occurred all around Kirby Moorside, whilst the three Whites were extremely abundant, particularly *P. brassicae* L. and *P. napi* L. From other localities members had one *Phragmatobia fuliginosa* L. (Ruby Tiger) (E. E. Branson) and *Erynnis tages* L. (H. Henson). I spent some time on the heather in Farndale, hoping for dark varieties of larvae of *Lasiocampa quercus* L. *f. callunae* Palmer (Northern Eggar). Three only were taken and all the pupae which were found cocooned in the heather had been parasitized, which may help to explain the scarcity, though the species appears to be on the decline throughout the county. One *Anarta myrtilli* L. (Beautiful Yellow Underwing) was taken, whilst *Ematurga atomaria* L. (Common Heath) was very common indeed. It was surprising to find the latter species so common in fields by the River Dove, since one regards it as a heather moorland species.

Diptera (H. Henson): The following Tipulidae were taken during the week-end: *Tipula variipennis* Mg., *T. oleracea* L., *T. vernalis* Mg., *T. nubeculosa* Mg., *T. pabulina* Mg., *T. hortulana* Mg., *T. luna* West, *Limonia flavipes* Fab., *Dicranomyia chorea* Mg., *Rhipidia maculata* Mg., *Tricyphona immaculata* Mg., *Dactylolabis transversa* Mg.

Conchology (E. M. Morehouse); The meeting was most profitable for the conchologist. The smaller helices were not seen but *Clausilia laminata* Montagu, *Hygromia hispida* L., *Helix hortensis* Müll., and *Ena obscura* Müll., were seen on the trunks of maple and hazel.

In the follwoing list, 1 = Sleightholme Wood and quarry.
2 = Douthwaite Dale.

Helix hortensis Müll., 1
H. nemoralis L., 1
Arianta arbustorum L., 1, 2
Clausilia bidentata Ström., 1
C. laminata Montagu, 1, 2
Cochlicopa lubrica Müll., 1, 2
Vitrea cellaria Müll., 1,
V. alliaria Mill., 1, 2
V. nitidula Drap., 1, 2
V. pura Alder, 1, 2
Vitrina pellucida Müll., 1
Helicella itala L., 1, 2
Helicella caperata Montagu, 2
H. virgata Da Costa, 2
Ena obscura Müll., 1
Theba cantiana Montagu, 1
Pyramidula rotundata Müll., 1, 2
P. rupestris Drap., 1
Hygromia hispida L., 1
H. rufescens Penn., 1, 2
Vertigo edentula Drap., 1
Arion ater L., 1, 2
A. hortensis Fer., 1, 2
Agriolimax agrestis L., and vars., 1, 2

Pyramidula rupestris was found on wood, *not* on a limestone wall or near one.

Flowering Plants (C. M. Rob): Any doubts regarding the early date for the meeting were quickly at an end; plants were well forward and the lists made on each of the three days were well up to average for a Whitsuntide meeting. Seventy additions were made to the 10 km. square 44/68 bringing the total to 403 species, and 46 to 44/78 making the total for that square 404.

While most of the plants noted were common the following are worth recording. *Galeobdolon luteum* Huds. (Yellow Archangel) was abundant in Sleightholmedale and down as far as Kirkdale church. The distribution of this plant in the North Riding is very strange and only in this area is there any quantity of it. Columbine and Lily-of-the-valley were in good flower and *Carex digitata* L. was plentiful in the same dale, a new locality for this rare sedge. Another good sedge record was made near Sleightholmedale Lodge when immature plants were found of what was thought to be *C. strigosa* Huds. The identification was verified later in the year when *Hordelymus europaeus* (L). Harz (Wood Barley) was found in abundance in the woods nearby. *Carex divulsa* Stokes was found by Miss Norman and Mr. Collins in a hedge between Kirby Moorside and Douthwaitedale where it was locally abundant. This is also a good addition to the flora of this area. *Melica nutans* L. was noted on both Saturday and Monday.

The abundance of *Ophrys insectifera* L. (Fly Orchid) was a high light of this meeting, though reports received since show that this is a particularly good year for this species. *Trientalis europaea* L. (Chickweed Wintergreen), *Listera cordata* (L.) R. Br. (Lesser Twayblade), *Dactylorchis purpurella* (T. & T.A. Stephenson) Vermeul. (Purple Marsh Orchid), *Cirsium eriophorum* (L). Scop. (Woolly Headed Thistle), *Neottia nidus-avis* (L.) Rich. (Bird's Nest Orchid), *Eriophorum latifolium* Hoppe (Broad-leaved Cotton Grass) and *Carex dioica* L. were also seen.

Erinus alpinus L. and *Acaena anserinifolia* (J. R. & G. Forst.) Druce were well established on the site of a disused hard tennis court in Douthwaitedale. The Primrose-Cowslip hybrid was seen in a number of places, and large plants of *Sempervivum tectorum* L. (Houseleek) were noted on the walls and roofs in Kirby Moorside.

Fungi (W. G. Bramley): The preceding weeks of dry weather and absence of heavy dew, together with no large stands of dense vegetation, did not favour the development of herbaceous-loving Discomycetes and Pyrenomycetes. Only in Deepdale did we get dense cover by the streamsides and even here many species one would normally expect did not appear. In the two days some sixty species were identified, but with the exception of *Helotium rhodoleucum* and *Diaporthe strumella* there was little that would not have been expected. The former has apparently only

been collected before in Norfolk; the latter is said to be scarce but the writer has collected it several times on dead branches of *Ribes* species.

H = Hutton Common and Deepdale.
R = Riccal Dale.
† = not in Mason & Grainger's *Catalogue of Yorkshire Fungi.*
* = not in Mason & Grainger's *Catalogue of Yorkshire Fungi* for V.C. 62.

Peronospora alta Fuckel, H.
**Dasyscypha apala* (B. & Br.) Dennis, on *Juncus*, R.
**D. clandestina* Fuckel, on *Chamaenerion*, H.
†*D. nudipes* (Fuckel) Sacc., on *Filipendula*, H, R.
†*D. nudipes* var. *minor* on *Chamaenerion*, H.
†*Helotium rhodoleucum* (Fr. ex Fr.) Fr., on *Equisetum*, R.
**Cryptospora suffusa* (Fr.) Tul., on *Alnus*, R.
†*Diaporthe strumella* (Fr.) Fuckel, on *Ribes nigrum*, H.
**Venturia rumicis* (Desm.) Ces. & de Not., H.
**Puccinia chaerophylli* Parl., on *Myrrhis*, Ol. H.
†*Entyloma ficariae* (Berk.) F. de Waldh., on *R. ficaria*, H.
†*Acrothecium simplex* B. & Br., on *Urtica*, R.
†*Ovularia primulana* Karst., on *P. vulgaris*, H.
**Periconia byssoides* Pers., on *Urtica*, R.
†*Xylohypha nigrescens* (Pers. ex Fr.) Mason.
†*Apopelasmia urticae* (Lib.) Grove, on *Urtica*, H.
**Phoma acicola* (Lev.) Sacc., on *Pinus* needles, H.

BIRDSALL, V.C. 61, June 6th

Fairly good weather favoured the meeting held at Birdsall by kind invitation of the Lord Middleton, and the party were honoured by a visit from the Hon. Michael Willoughby at lunch time. After the meet at Fridaythorpe the party went by car to the big quarry at Wharram-le-Street where cars were parked and the surrounding district well examined. After lunch a visit was made to some of the woodland on the Birdsall Estate, where a heavy shower spoilt what would have otherwise been perfect weather.

At the meeting held after tea in Birdsall village hall Mrs. Morehouse took the chair in the absence of any Vice President. Seven affiliated societies were represented. A vote of thanks to the landowner The Lord Middleton was moved, also one to the divisional Secretary Miss Eva Crackles who had made the arrangements and to the Hon. M. Willoughby for his invaluable co-operation and help.

Vertebrate Zoology (B. S. Pashby): (Mammals and Amphibians). Brown Hares were very common, on both the higher and lower parts of the area. Young frogs were plentiful in marshy ground near Oxpasture Wood and one common Toad was also reported, as were molehills in the Leys Wood area.

Ornithology: Oxpasture Wood and the surrounding area was visited in the morning, 38 species being recorded. The woodland birds included a family of Blackcaps on the wing, illustrating the early breeding of most species this year. A pair of Long-tailed Tits with young, Turtle Dove, Great Spotted Woodpecker, Bullfinch, Redstart, Treecreeper, Mistle Thrush and Tree Sparrow were identified. Other birds seen in this area included Curlew, Lapwing, Meadow Pipit, Reed Bunting and Spotted Flycatcher.

The area near Wharram Percy and the Burdale Tunnel was visited and a Snipe was flushed, and a Tree Pipit and three immature Gulls seen. The rest of the day was spent first at Birdsall House, through the kind invitation of the Hon. M. Willoughby, where Spotted Flycatcher was seen, also a colony of House Martins, some of the nests being built in the stone recesses of the windows, and being the same colour as the stone, were difficult to pick out at a glance. We then visited Leys Wood, where we saw Jay, Sedge Warbler and Bullfinch. The Chairman reported seeing a Coot on the road near Birdsall, no doubt from the Lake. These last few species brought the day's total to 50.

Conchology (E. M. Morehouse): *Arianta arbustorum* L. seemed to be fairly well distributed between Fridaythorpe and Birdsall. There was also a colony of *Helix*

nemoralis L. var. *libellulu* Risso which was commoner than the type and other varieties. In Aldro Wood, Birdsall, *Clausilia laminata* Montagu was present in hundreds. On two pieces of bark the writer counted 15 and 20. The following species were observed:

Helix nemoralis L. and *vars.*, especially *var. libellula* Risso
H. hortensis Müll.
Arianta arbustorum L.
Theba cantiana Montagu
Clausilia laminata Montagu
Vitrina pellucida Drap.
Vitrea cellaria Müll.
V. alliaria Mill.
Vitrea nitidula Drap.
Pyramidula rotundata Drap.
Hygromia rufescens Penn.
Arion ater L.
A. ater L. var *plumbea* Roebuck
Limax maximus L.
Agriolimax agrestis L.
A. agrestis L. var. *albida* Picard

Flowering Plants (E. Crackles): Golden Saxifrage, *Chrysosplenium oppositifolium* L. was found at the water-splash at Wharram, where it was known to grow, but it was not in flower. The botanists then worked the hillside along the valley to the north of the village. An interesting feature of the vegetation here, is *Lathyrus montanus* (L.) Bernh. (Bitter Vetch), which is a very uncommon plant in the East Riding. The Marsh Horse-tail, *Equisetum palustre* L., was well in evidence in marshy ground in the valley because of the abundance of fruiting spikes. Other marsh species seen included *Lychnis flos-cuculi* L. (Ragged Robin), *Lotus uliginosus* Schkuhr. (Large Birdsfoot-trefoil) and several kinds of sedge, *Carex panicea* L. (Carnation Sedge), *C. flacca* Schreb. (Glaucous Sedge), *C. nigra* (L.) Reichard (Common Sedge), *C. spicata* Huds. (Spiked Sedge), *C. ovalis* Good. (Oval Sedge) and *C. hostiana* DC. which seems to be rare in the Riding, as well as large beds of *Carex acutiformis* Ehrh. *Nardus stricta* L. (Mat grass) seemed quite out of place at the bottom of this hill side.

On the railway bank large specimens of *Equisetum telmateia* Ehrh. were seen and other species noted included *Trifolium medium* Huds, (Zig-zag Clover) and *Plantago media* L. (Hoary Plantain), and, on the cindery track itself *Cerastium glomeratum* Thuill. (Sticky Mouse-eared Chickweeed), *Chaenorrhinum minus* (L.) Lange (Small Toadflax) and *Erophila verna* (L.) Chev. (Whitlow Grass). In the vicinity of the disused railway station *Senecio viscosus* L., *Artemesia absinthium* L. and *Lolium multiflorum* Lam. occurred.

In arable fields in this area, *Fumaria parviflora* Lam. and *Papaver lecoqii* Lamotte were recorded together with *P. argemone* L., and *Ophrys apifera* Huds. (Bee Orchid) was noted in the chalk quarry where the party had lunch.

In the afternoon the vicinity of Birdsall Ings House was explored. In the woods *Equisetum telmateia* Ehrh. again arrested attention and the hybrid Avens *Geum rivale* L. × *G. urbanum* L., which had also been noted elsewhere in the area. It was good from the botanist's point of view to find a field here containing many plants of the Woolly Headed Thistle (*Cirsium eriophorum* L. (Scop.)) also a patch of *Geranium sanguineum* L. (Bloody Cranesbill), while *Senecio erucifolius* L. (Hoary Ragwort) and *Koeleria gracilis* Pers. were also present in this locality.

Orobanche reticulata Wallr. was seen in its known station in the area and was found parasitising both the Woolly Headed and Common Thistles (*Cirsium eriophorum* and *C. arvense*). Another discovery of note was *Ranunculus parviflorus* L. (Small-flowered Buttercup) on dry, bare ground in the Grimston area, while *Blysmus compressus* (L.) Link was reported from marshy ground at North Grimston.

Fungi (W. G. Bramley): Although rain the previous day had revived the dried up fungi, the remarks written for the Kirby Moorside meeting apply here. With the season advanced, uredines were more in evidence and a number of the smuts were also seen. It was pleasing to collect *Urocystis fischeri* again after many years and it is probably more common than records suggest. *Ophiobolus penicillus* has probably not been recorded before but has been collected several times both by Dr. J. Webster and the writer.

W = Wharram-le-Street.
B = Ings House, Birdsall.
† = not in Mason & Grainger's *Catalogue of Yorkshire Fungi.*
* = not in Mason & Grainger's *Catalogue of Yorkshire Fungi* for V.C. 61.

**Plasmopara pusilla* (de Bary) Schroet., W.

†*Dasyscypha nudipes* (Fuckel) Sacc., on *Filipendula*, W.
†*D. nudipes* var. *minor* Dennis, on *Epilobium hirsutum*, W.
**Hyalina auricolor* (Blox.) Boud., B.
**Mollisia carduorum* (*Pyrenopeziza*), on *Cirsium*, B.
†*Chaetosphaeria innumera* (B. & Br.) Tul., B.
†*Ophiobolus penicillus* (Schmidt ex Fries) Sacc., on *Centaurea nigra*, W.
**Venturia rumicis* (Desm.) Ces. & de Not., W.
**Urocystis fischeri* Korn., on *Carex flacca*, B (may have been previously recorded as *U. agropyri*).
**Puccinia arrhenatheri* Erikss., W.
**P. bromina* Erikss., on *A. sterilis*, W.
**P. holcina* Erikss., on *Holcus lanatus*, W.
**Uredo anthoxanthina* Bubak, on *A. odoratum*, W.
**Dactylium dendroides* (Bull.) Fr., on *Pholiota mutabilis*, B.

BISHOP WOOD, SELBY, V.C. 64, June 20th

The effects of the hot dry weather were noticeable on this meeting, but the glorious weather on the day made up for the general dryness of the ground.

The Forestry Commission District Officer joined the party for the early part of the meeting and kindly provided some large scale plans of the wood.

Some forty-five members attended this excursion and twelve affiliated societies were represented at the meeting held after tea. Votes of thanks were moved to the owners (The Forestry Commission), the shooting tenant and the Divisional Secretary, Miss C. Shaddick.

Ornithology (R. Chislett): The small ornithological party included the Hon. Sec. and the Chairman of the Section, who were interestd to see the extent to which the young, replanted woodlands had become repopulated following the extensive felling of World War I.

Dykes intersected the normally wet terrain in every direction, all of them dry after the droughts of May and June to date. A Woodcock was flushed from one of them. Black Poplars were the tallest trees and natural Birch, with Pine, Larch, Spruce now of pitwood size, and some Oak making up most of the remainder. Sitka Spruce is very attractive to the Turdidae for nesting-sites.

In the absence of old timber Tits were scarce but the five species noted included Coal, Willow, and Long-tailed. A Green Woodpecker was recorded. No hawk or owl was noted. Game birds were scarce (or very quiet). Wood-pigeons were numerous, Turtle Doves surprisingly scarce. Carrion Crow, Magpie, Jay and a couple of Rooks were seen and Jackdaw heard. Wrens, Song-thrushes, Blackbirds, Robins and Hedge-sparrows sang plentifully, and a Redstart was noted. Warblers were well distributed (Chiffchaff, Willow, Whitethroat, Garden and Blackcap—all in song). Goldcrest and Tree-pipit were recorded. Bullfinches were in the woods; and Greenfinch, Linnet, Chaffinch and Yellowhammer about the outskirts. Other species noted in the vicinity were Lapwing, Swift, Skylark, Swallow and Starling; bringing the total to 39.

Entomology (J. H. Flint): The fine day provided excellent conditions for insect collecting but the very dry conditions produced by the drought of the preceding weeks was probably responsible for the limited number of beetles seen. *Clytus arietis* (L.) was seen by Mrs. Payne, and *Strangalia maculata* (Pod.) by Mr. W. J. V. Ward. Among the beetles taken by the writer were *Podabrus alpinus* (Pk.), *Phyllodecta laticollis* Saffr., *Deporaus mannerheimi* Hum., and *Attelabus nitens* (Scop.). Of the beetles associated with pine only *Myrrha octodecimguttata* (L.) and the larvae of *Anatis ocellata* (L.) were seen. A few sawflies were collected and *Arge pagana stephensii* (Leach), *A. gracilicornis* (Klug) and *Calameuta pallipes* (Klug) were among those which have been named so far, the remainder not having been named at the time of writing.

On the occasion of the Union's last visit to Bishop Wood in 1931 a good list of Hemiptera was compiled by the late J. M. Brown, and many of the species he recorded were seen this year. The most notable species to be found on this occasion was the large hopper *Aphrophora salicis* (Deg.), two specimens of which were beaten from Sallow. This species has not previously been recorded from Yorkshire. Many

Aphrophora nymphs were seen. New to V.C. 64 was another hopper, *Graphocraerus ventralis* (Fall.), only previously recorded within the county at Renishaw in 1930. Altogether 30 species of Hemiptera were noted, and apart from the two already mentioned, these included *Calocoris fulvomaculatus* (Deg.), *Plesiocoris rugicollis* (Fall.), *Pithanus maerkeli* (H.-S.), *Phylus palliceps* Fieb., *Bryocoris pteridis* (Fall.), *Cyllecoris histrionicus* (L.). *Dichrooscytus rufipennis* (Fall.). *Evacanthus acuminatus* (F.), *Cicadella vittata* (L.), and *Cercopis vulnerata* Germ.

Lepidoptera (Mrs. J. Payne): It was pleasing to see the Speckled Wood, *Pararge aegeria* (L.) so much at home along the rides of Bishop Wood. As Porritt makes no mention of this species in his *List of Yorkshire Lepidoptera* of his *Supplement* (1903) it must be concluded that it had established itself there during the last half-century.

The Bordered White, *Buplarus piniarius* (L.) was flying freely wherever there were pines. This species must also be a recent settler as it was not mentioned in 1903 for this locality.

The Beautiful Carpet, *Mesoleuca albicillata* L., of which three specimens were seen and which is regarded as a good capture nowadays was taken in abundance in this station by Porritt.

Other species taken and reported were:

Meadow Brown *Maniola jurtina* (L.); Ringlet *Aphantopus hyperanthus* (L.); Red Admiral *Vanessa atalanta* (L.); Common Blue *Polyommatus icarus* (Rott); Large White *Pieris brassicae* (L.); Small White *Pieris rapae* (L.); Dingy Skipper, *Erynnis tages* (L.); Large Skipper *Ochlodes venata* (Bremer-Grey); Clouded Border *Lomaspilis marginata* (L.); Tawny Barred Angle *Semiothosia liturata* (Clerck); Chimney Sweeper, *Odezia atrata* (L.); Small Fanfoot *Zanclognatha nemoralis* (Fab.); Pine Beauty [larvae], *Panolis griseovariegata* (Goeze).

Conchology (E. M. Morehouse): Everywhere it was dry at Bishop Wood, but after a close search under wood and mown grass *Helix nemoralis* L. and varieties of it were found from the type to var. *lateritia* Dumont. A bird was observed cracking the latter on the road. In all, thirteen land molluscs and three slugs were identified.

Helix nemoralis L., from type to beautiful forms of var. *rubella* Moquin-Tandon.
H. nemoralis L. var. *lateritia* Dumont and Mortillet
Arianta arbustorum L.
Hygromia hispida L.
Pyramidula rotundata Drap.
Vitrea alliaria Mill.
V. nitidula Drap.
V. pura Alder
V. cellaria Müll.
Theba cantiana Montagu
Euconulus fulvus Müll.
Cochlicopa lubrica Müll.
Vertigo minutissima Hartman
Zonitoides nitidus Müll.
Arion ater var. *brunnea* Roebuck
A. ater var. *castanea* Dum. and Mort.
Limax maximus L.

Flowering Plants (C. M. Rob): The party spent most of the day in the part of the wood to the south of the road which cuts through from Selby. The map showed this to be the damper part and no doubt in an average year much of the ground covered would have been very wet, though at this time everywhere was dry.

Much of Bishop Wood was felled in the first war and has been replanted with conifers. The area to the south of the road has more of the original timber and a richer ground flora than the replanted parts, nevertheless the wide rides of this part had a good number of flowering plants and it is obvious that a closer examination of this part would have been rewarding.

Some plants mentioned on the circular were not seen; no *Poa nemoralis, Lycopus europaeus* L., *Solanum dulcamara* L. or *Rhamnus catharticus* L. was noted but a few plants of *Mercurialis perennis* L. and two of *Sanicula europaea* L. were seen. As stated on the circular Garlic was very resticted but did occur.

In addition the following are worth putting on record, *Calamagrostis epigejos* (L.) Roth, in the replanted part, *Carex binervis* Sm., new planted part to east of the main forest with *Carex pallescens* L. and *Corydalis claviculata* (L.) DC. *Crepis biennis* L., *Hypericum humifusum* L., *Veronica catenata* Pennell and *Vulpia bromoides* (L.) Gray.

Some 190 species were recorded but so little ground was covered by the botanists that there can be no doubt a considerably longer list could be made in the Bishop Wood area.

ASKERN, V.C. 63, July 4th

The day chosen for paying another visit to Shirley Pool at Askern, after an absence of many years, was the hottest of the year. The sun shone brilliantly all day and the temperature was too high for comfort. About thirty members were present and most of the morning was spent surveying the fields and woodlands surrounding the pool. Several members had lunch sitting in what shade they could find on the banks of the pool.

In the afternoon the botanists, in particular, spent a considerable time in the reed beds surrounding Shirley Pool. Because of the dryness of the summer it was possible to make a considerable penetration of the large area covered by tall reeds. It was a hot and tired party which finally returned to the headquarters for tea. This was followed by the customary meeting for the presentation of reports and in the absence of the President, Mr. Ralph Chislett took the Chair and 10 Societies responded to the roll call. Thanks were expressed to Mr. F. Chambers for granting permission for the party to visit Shirley Pool, and to the new Divisional Secretary, Mr. R. S. Atkinson who was attending the meeting in that capacity for the first time.

Vertebrate Zoology (R. Chislett): Wooded and sheep-grazed approaches to Shirley Pool, the vicinity of the Pool, and a short sweltering ramble through the fringe of the dyked (not quite dry) woods of Owston yielded 35 species of birds, on a blazing hot day. Included were: Reed and Sedge Warbler, Blackcap, Whitethroat, Chiffchaff and Willow-Warbler, Long-tailed Tits in a large party, several Bullfinches, Reed-Buntings, Yellow-hammers, Tree-sparrows and Wrens. Blue and Willow Tits also occurred. Moorhens had young. Turtle Doves and Wood-pigeons were plentiful. Crows were uncommon, a Rook had some white feathers, single Jays and Magpies were seen and Tree-pipits, Skylarks, and the Green Woodpecker were heard. Other species included the common Thrushes, and Swifts and Swallows flying over.

A Rabbit and a Hare were the only mammals recorded.

Lepidoptera (F. Hewson): Species seen were few but specimens were many, for *Maniola jurtina* L. (Meadow Brown) was extremely abundant, far more so than *Pieris brassicae* L. and *P. napi* L. (Large and Green-Veined Whites). *Augiades venata* Br. & Gr. (Large Skipper) was not uncommon and a few *Aglais urticae* L. (Small Tortoiseshell) were about. A few *Cabera pusaria* L. (Common White Wave) and *Euphyia bilineata* L. (Yellow Shell) were taken in woodlands and *Biston betularia* L. (Peppered) and *Triphaena pronuba* L. (Large Yellow Underwing) were seen. A larva of *Notodonta dromedarius* L. (Iron Prominent) was found. Two micros only were named, *Phlyctaenia lutealis* Huebner and *Limnaecia phragmitella* Stainton. Mrs. Payne took pupae of the latter from heads of *Typha latifolia* (Great Reedmace) at Shirley Pool and moths emerged the same evening. Previously Yorkshire had only three recorded localities for the species, viz, Bishop Wood, Askam Bog and Kelsey Pits near Ryehill.

Flowering Plants (W. A. Sledge): The long spell of dry weather which had preceded this excursion gave an unusually good opportunity of working the marsh surrounding Shirley Pool, and it was possible to penetrate the reed swamps fringing the pool and to collect dry-shod plants which are usually very difficult to approach. Access to Shirley Pool was from the road to the south, working first round the east side, then into the dense *Phragmites* beds on the west side and subsequently examining the marshy pastures farther north to Rushy Moor and then back via Rushy Moor Lane to the starting point.

The plant ecology of the area has been described in reports of previous Y.N.U. visits to Askern. Of these Mr. Malins Smith's account (*Nat.* 266-268, 1938) is the most detailed. His observations and comments on the composition and zonation of the vegetation at Shirley Pool and their relation to conditions are still valid today and will become of increasing importance in the future as a basis for comparison with any later changes.

The following were amongst the species observed:

Ranunculus sceleratus L.
Thalictrum flavum L.
Rorippa islandica (Oeder) Borbas
Hypericum tetrapterum Fr.
Myosoton aquaticum (L.) Moench
Potentilla anglica Laich.
Sanguisorba officinalis L.
Epilobium adenocaulon Hausskn.

Myriophyllum spicatum L.
Callitriche platycarpa Kütz.
C. obtusangula Le Gall
Conium maculatum L.
Apium nodiflorum (L.) Lag.
Berula erecta (Huds.) Coville
Polygonum amphibium L.
Rumex hydrolapathum Huds.
Lysimachia vulgaris L.
Samolus valerandi L.
Scrophularia aquatica L.
Veronica beccabunga L.
V. catenata Pennell
Lycopus europaeus L.
Scutellaria galericulata L.
Stachys palustris L.
Galium palustre L.
Pulicaria dysenterica (L.) Bernh.
Baldellia ranunculoides (L.) Parl.
Alisma plantago-aquatica L.
Triglochin palustris L.
Potamogeton crispus L.
P. densus L.
Zannichellia palustris L.
Iris pseudacorus L.
Sparganium erectum L.
Typha latifolia L.
T. angustifolia L.
Blysmus compressus (L.) Panz.
Cladium mariscus (L.) Pohl
Carex acutiformis Ehrh.
C. disticha Huds.
C. elata All.
C. flacca Schreb.
C. hirta L.
C. ovalis Good.
C. pseudo-cyperus L.
C. remota L.
C. riparia Curt.
Calamagrostis canescens (Weber) Roth
Alopecurus myosuroides Huds.
Thelypteris palustris Schott

In hedges by the main road south of Askern *Clematis vitalba* L. (Travellers Joy) and *Humulus lupulus* L. (Hop) were noted. *Ranunculus lingua* L. (Great Spearwort) and *Hippuris* (Mare's Tail) which were noted in 1938 were not found though the former should have been in full flower and conspicuous at this season.

Of the species listed above *Epilobium adenocaulon* was an unexpected find. I had not previously met with this in Yorkshire and its presence deep in the *Phragmites* beds on the west side of Shirley Pool was a surprise. *Callitriche platycarpa* and *C. obtusangula* are also additional records for the area and *Blysmus compressus* does not figure in any of the lists of species recorded in the previous accounts of this district. *Veronica catenata* has doubtless been previously recorded as *V. anagallis-aquatica*.

In 1927 I gathered *Ranunculus arvensis* (Corn Buttercup) and *Alopecurus myosuroides* in cornfields on the east side of Shirley Pool. The latter is still plentiful there but the former was searched for unsuccessfully. It may well have disappeared with improved seed cleaning methods in the same way that *Bupleurum rotundifolium* and *Linaria elatine* which are both referred to in the Askern circular for 1886 as growing in cornfields near Campsall, have almost certainly long since vanished.

Several other species listed in former excursion reports or articles dealing with the Askern district have not been confirmed in the accounts of the last three meetings held here in 1926, 1938 and 1959. The more important of these are: *Ranunculus trichophyllus* Chaix (1893, 1912), *R. circinatus* Sibth. (1893) (no water buttercups were seen on this excursion), *Oenanthe lachenalii* C.C. Gmel. (1906, 1913), *Anagallis tenella* L. (1906, 1913), *Hottonia palustris* L. (1893), *Utricularia minor* L. ("Askern Pool", Circular 1886), *Galium uliginosum* L. (1906, 1913), *Potamogeton coloratus* Hornem. (1912), "*Orchis latifolia*" (1906, 1912, 1913), "*Orchis incarnata*" (1906) (No marsh or spotted orchids were noted on this excursion and none were recorded in 1926 or 1938), *Scirpus tabernaemontani* C.C. Gmel. (1906, 1913), *Schoenus nigricans* L. (1906), *Carex vesicaria* L. (1913), *C. distans* L. (1906, 1913). No precise locations are indicated for these plants in the accounts in which they are cited and judging from the routes taken—which invariably started from Askern itself—it seems likely that many of them were seen in marshy areas nearer the village and not in the vicinity of Shirley Pool. Dr. Corbett stated (in Circ. 239, 1912) that in the water of Shirley Pool itself there is "hardly any living vegetation either floating or submerged" and this is certainly the case today. With increased independance of railway stations as a starting point for excursions, it has been the practice since the 1913 meeting to go directly to Shirley Pool, and Rushy Moor and the area between here and Askern has been neglected. How much marsh vegetation and how many of the species cited above still persist in this area is therefore uncertain and had I consulted the earlier reports before instead of after the excursion an investigation of this region would certainly have been made.

Seventy-two additions were made to the existing B.S.B.I. records for the square bringing the total to over 400, but it still remains incompletely recorded.

BOWES, V.C. 65, July 18th-19th

The Union had not visited Bowes since 1903. The report of that meeting made interesting reading, and while in some ways there appears to have been little change in the district, the traffic on the main road would have amazed those who were present on the occasion of the 1903 meeting.

Twenty-six members attended and at the meeting held on the last evening ten affiliated Societies were represented.

Saturday was spent in the valley of the Greta, from God's Bridge where the Pennine Way crosses the stream, up to beyond the Spittle Cottages returning by way of Collinson's Tarn. Some ornithologists explored the higher land between the Greta Valley and Deepdale. Rain fell as the party set off and the prospects were not encouraging but a change in the weather gave a beautifully fine afternoon followed by another fine and warm day on the Sunday when the party split up and covered as much of Sleightholmedale as possible. This valley is a complete contrast to the Greta, with steep, fine scars and waterfalls. Two members got up to Gilmanscar finding the *Draba incana* recorded from there in Baker's *North Yorkshire.*

Ornithology (R. Chislett): In the Greta Valley, where most of our time was spent, Mallard were frequent with up to *ca.* 20 in one party; Heron occurred; and Oystercatcher, Lapwing, Common Sandpiper, Curlew, Redshank, Dipper, Sand-Martin, Wheatear (fairly numerous); Pied, Grey and Yellow Wagtails, and Meadow-pipit. In the wooded parts, Wren, Robin, Redstart, Willow-warbler, Spotted Flycatcher, and Tree-pipit were added. J. P. Utley and C. Simms visited the high moors where Curlew, Golden Plover, Snipe, Merlin, Red Grouse and Whinchat were noted. A small Black-headed Gullery held some young and others were airborne. Lesser Black-backed and Common Gulls followed the course of the Greta westward, and Herring Gull was recorded. Near to Bowes itself, House-Martins outnumbered Swallow and Swift, which was rather unusual, but which was recorded in Bowes when the Y.N.U. were last there—in 1903. Linnets were about the churchyard yews. Other species noted included Kestrel, Partridge, one Pheasant, numerous Wood-pigeons, a juvenile Cuckoo, Skylark, Carrion Crow (scarce but a crow-trap was found), Rook, Jackdaw; Great, Blue and Coal Tits; a Nuthatch, Tree-creeper, Wren (numerous), all three common Turdidae, Hedge-sparrow, Starling, Greenfinch, and Chaffinch; making a total of 55 for the two days.

Entomology (Mrs. H. E. Flint): Insects generally were not numerous although collecting conditions were good following Saturday morning's rain. Apart from the writer, no other entomologist was present, but other members of the party reported dragonflies of the genera *Aeshna* and *Agrion*, and Mr. Utley reported "a swarm of large black and yellow wasps" flying in the hot sunshine around the highest point on a hill on the moors. From his description these must have been the wood wasps *Urocerus gigas* (L.) and this would be a mating swarm. A few common sawflies were taken. A number of beetles were taken by the stream side in the Greta Valley at God's Bridge and these included *Bembidion decorum* (Pz.), *B. tibiale* (Duft.), *B. atrocoeruleum* Steph. and *Stenus guttula* Muell. *Bledius pallipes* (Grav.), not previously reported from V.C. 65, was also found in the sandy bank of the stream here. On Sunday *Agabus congener* (Thun.) and *Helophorus arvernicus* Muls. were among beetles found in the stream in the Sleightholme Valley, but the most notable insect taken during the weekend was the rare waterbug *Glaenocorisa propinqua* (Fieb.) which has only previously been taken in Yorkshire at Robin Hood's Bay. This species and *Corixa wollastoni* D. and S. were both present in numbers in a small tarn on the moors above Sleightholme and were collected by Mr. Dealtry. I am indebted to my husband for the determination of the beetles and bugs.

Flowering Plants (W. A. Sledge): The Botanical Section was strongly represented at this meeting and, favoured once again by excellent weather, the week-end proved a thoroughly enjoyable one. The district is not notable for many rarities and partly on that account and partly no doubt on account of its proximity to Teesdale, which pulls to it botanists anywhere in the vicinity like a magnet pulls iron filings, the botany of this area has been neglected. Only once previously, in 1903, has the Y.N.U. met here and judging from the lengthy report on that excursion the ground then explored was mainly down-river, in the opposite direction to that visited on this occasion.

On Saturday the walk up the Greta from God's Bridge and then on to the moors north of the main road produced a long list of species as both limestone and acid peaty ground was traversed. The rocks and boggy ground bordering the river yielded a number of interesting plants of which the following are the more notable:

Ranunculus hederaceus L.
R. lenormandi F. W. Schultz
Viola palustris L.
V. lutea Huds.
Sagina nodosa (L.) Fenzl
Potentilla palustris (L.) Scop.
Sanguisorba officinalis L.
Rosa villosa L.
Sedum villosum L.
Myriophyllum alterniflorum DC.
Vaccinium oxycoccos L.
Primula farinosa L.
Menyanthes trifoliata L.
Myosotis secunda A. Murr.
Myosotis brevifolia C. E. Salm.
Veronica scutellata L.
Pinguicula vulgaris L.
Galium mollugo L.
Cirsium heterophyllum (L.) Hill
Crepis paludosa (L.) Moench
Triglochin palustris L.
Potamogeton alpinus Balb.
Scirpus pauciflorus Lightf.
S. setaceus L.
Carex dioica L.
C. hostiana DC.
Catabrosa aquatica (L.) Beauv.
Selaginella selaginoides (L.) Link.

On Sunday Sleightholme Beck was investigated. In its lower reaches the stream forms a gorge through the limestone with cliffs of considerable height and a waterfall at the head; above which it continues as an open stream flanked by moorland or upland meadows but with occasional steep rocky or wooded banks providing refuges for a varied flora. The gorge in the lower part of the valley is wooded with ash, elm, birch, and yew as indigenous trees admixed with beech, sycamore and pine and with shrubs of hazel, hawthorn and bird cherry. The grasses *Agropyron caninum* (L.) Beauv. and *Poa nemoralis* L. are abundant here as are the ferns *Cystopteris fragilis* (L.) Bernh. and *Asplenium trichomanes* L. though, surprisingly, the Green Spleenwort and Hart's Tongue Fern were apparently quite absent. On the limestone rocks and cliffs *Scabiosa columbaria* (L.) Scop. (Hairy Rock-cress) was present but no Rock-rose or *Galium pumilum* Murr. for which the locality seemed ideally suited. Both the Marsh Bedstraws, *Galium palustre* L. and *G. uliginosum* L. were noted. The best plant seen in Sleightholme dale was *Draba muralis* L. still growing on rocks near the waterfall where it is recorded in Baker's *North Yorkshire* as the sole North Riding locality and as having been first found there in 1876. The record does not appear to have been confirmed by any recent botanists and the verification of the plant's persistence there was one of the most interesting observations made during the week-end.

The stream and neighbouring ground above the waterfall yielded few additional plants to those observed lower down or on the previous day but amongst those seen here were *Trifolium medium* L. (Zigzag Clover), *Geranium sylvaticum* L. (Wood Geranium), *Galium uliginosum* L. (Marsh Bedstraw), *Primula farinosa* L. (Bird's-Eye Primrose), *Pinguicula vulgaris* L. (Butterwort), *Cirsium heterophyllum* (L.) Hill (Melancholy Thistle), *Salix phylicifolia* L. (Tea-leaved Willow), *Blysmus compressus* (L.) Panz ex Link, and *Equisetum sylvaticum* L. (Wood Horsetail).

Gilmanscar was worked by two members and here Baker's records of *Draba incana* L. (Hoary Whitlow Grass) and *Saxifraga hypnoides* L. (Mossy Saxifrage) referred to in the excursion circular, were also confirmed.

About 300 species were recorded on the two days—a substantial addition to those already listed for this square. As the area is predominantly moorland with very little cultivation the investigation of this square may now be regarded as reasonably complete.

Bryology (G. A. Shaw): At the meeting at Bowes in 1903, Messrs. Wm. Ingham, Robert Braithwaite and Matthew B. Slater produced a lengthy list of bryophytes, which is printed in *The Naturalist* for that year. Many of those listed in 1903 were again noted in 1959, and one new record for V.C.65 was made by the finding by Dr. Sledge and myself of *Riccia beyrichiana* on flat, wet rocks by the River Greta above Bowes, where it was accompanied by *Sedum villosum* and *Sagina nodosa*.

The gorge of Sleightholme Beck below the falls was without doubt the richest area visited, providing a varied number of habitats ranging from the dry upper cliffs, thickly clothed in parts with *Neckera crispa* and *Anomodon viticulosus*, to wet or even dripping rocks at the base, where there were some striking masses of

bryophytes notably *Cratoneuron commutatum* and its var. *falcatum* and *Scapania undulata* var. *dentata*.

The following are the more interesting records:

By the R. Greta above Bowes:
Fissidens cristatus Wils.
Dichodontium pellucidum (Hedw.) Schp.
Tortula subulata Hedw.
Barbula tophacea (Brid.) Mitt.
Gymnostomum aeruginosum Sm.
Bryum pendulum (Hornsch.) Schp.
B. inclinatum (Brid.) Bland
Drepanocladus uncinatus (Hedw.) Warnst.
Preissia quadrata (Scop.) Nees
Marchantia polymorpha L.
Riccia beyrichiana Hampe (new to V.C. 65)
Riccardia pinguis (L.) S. F. Gray
Scapania undulata (L.) Dum. var. *dentata* (Dum.) Douin

Sleightholme Beck:
Gymnostomum aeruginosum Sm.
G. recurvirostrum Hedw.
Neckera complanata (Hedw.) Huben.
Anomodon viticulosus (Hedw.) Hook. & Tayl.
Cratoneuron commutatum (Hedw.) Roth
C. commutatum (Hedw.) Roth var. *falcatum* (Brid.) Moenk.
Preissia quadrata (Scop.) Nees
Reboulia hemisphaerica (L.) Raddi
Metzgeria pubescens (Schrank) Raddi
Scapania undulata (L.) Dum. var. *dentata* (Dum.) Douin

BOTANICAL SECTION MEETING AT KELD, August 29th

Sixteen members attended this meeting, the main purpose of which was to add to the list of plants recorded in the B.S.B.I. mapping scheme. Only 138 species had so far been recorded in this square, the total being raised by an additional 135 species in the course of the day, during which only a small part of the square was covered.

None of the plants seen during the meeting were notably uncommon, the most interesting point of the day's work being the extension of the upward limit of a number of species, i.e. *Oenanthe crocata* previously given for 300 ft. was in some quantity in a small stream and by the Swale at about 1,100 ft. *Cardamine amara, Medicago lupulina, Calystegia sepium, Glechoma hederacea* and *Polygonum bistorta* cited by Baker as occurring under 900 ft. were all seen over the 1,050 ft. contour, and several other species were noted at their uppermost limit in Yorkshire. *Senecio fluviatilis* was seen near West Stonesdale Bridge, very near the Whitsundale locality where Baker recorded it in 1863.

The greenness of the fields in the upper part of Swaledale was a striking feature no doubt due to the fact that the upper dales have had heavy dew in addition to some rain. In marked contrast the vegetation lower down the valley appeared parched and dry, many trees already having a decidedly autumnal appearance.

LINCOLNSHIRE BRYOPHYTE HERBARIUM

For many years now, moss and hepatic collections have been made throughout Lincolnshire, but little progress has been made towards establishing a permanent collection for the county.

Collections made by Mr. G. H. Allison, Miss S. C. Stow, Rev. W. Fowler, Mr. J. J. Marshall and Dr. F. A. Lees, and deposited in my charge, have enabled me to supply the county with a much-needed bryophyte herbarium. The herbarium is housed in the City and County Museum, Lincoln, and is based on many recordings which have appeared in *The Naturalist* and *Lincs. Nat. Union Transactions*.

I should be pleased to supply information concerning Lincolnshire bryophytes, and to receive further specimens for the herbarium.

Mark R. D. Seaward, B.Sc.,
c/o City and County Museum, Lincoln.

SPRING FORAY AT PATELEY BRIDGE
April 9th-12th, 1959

W. G. BRAMLEY

Due to various causes the attendance reminded one of the war years, as the maximum number present was seven. In spite of this a very successful week-end was held both mycologically and socially.

Ravens' Gill which was visited on the Friday proved to be the best collecting ground. Soon after entering, a very large patch, covering nearly a square yard, of a myxomycete was found which proved to be *Trichia floriformis*. Discomycetes were mostly lignicolous species of *Mollisia* and *Tapesia* and most pieces of decaying wood had some. Herbaceous species of discomycetes had not developed to the same extent and many collections were in a very young condition. Some twenty species of Pyrenomycetes were identified and several one would have expected were absent or overlooked. Hyphomycetes were not abundant but a *Corynespora* probably new to science was collected on birch.

An excursion to Picking Gill near Sawley the next day revealed that almost clear felling was taking place and the upper end of the valley was a desolation. The ' lop and top ' left was too recent to produce anything even in species of first incidence and the activities of tractors had churned up a great deal of the ground. In the undisturbed patches a number of agarics were found and the discomycetes were much the same as those seen on the previous day.

The final excursion was to Wath. Here conditions were much drier and away from the stream side little was found. A partially submerged branch produced what was later identified as *Mollisia cinerella*, probably its first record for this country. Later a move was made to the pastures fringing the valley and here a number of agarics were found both in the grass and on dung. A *Cheilymenia* on sheep dung was obtained which so far has not been identified. Mr. W. D. Graddon, to whom the material was referred, informs me that he collected very similar material at Brecon Beacons about the same time.

A very unusual feature of the foray was that with the exception of critical genera such as *Mollisia* and one or two agarics, all material collected had been identified or reserved for more expert opinion long before the early hours of the morning.

Finally, our especial gratitude is due to those without whom foray lists would be much diminished, the ' experts ', C. Booth, M. B. Ellis, W. D. Graddon, who have given help and guidance over many years.

‡New to Britain.
†Not in Mason & Grainger's *Catalogue of Yorkshire Fungi.*
*Not in Mason & Grainger's *Catalogue of Yorkshire Fungi* for V.C. 64.

R=Ravens' Gill. P=Pickering Gill. W=Wath.

Myxomycetes:

†*Trichia floriformis* G. Lister,	R.

Discomycetes:

**Allophylaria chrysostigma* (Fr.) Nannf.	W.
†*Apostemidium fiscellum* Karst.	
**Dasyscypha acum* (Alb. & Schw. ex Fr.) Sacc.	P.
†*D. brevipila* Le Gal.	R.
Helotium calyculus (Sow.) Fr.	R.
†*Hyaloscypha leuconica* (Cooke) Nannf.	P.
†*H. stevensonii* (B. & Br.) Nannf.	R.
**Micropodia pteridina* (Karst.) Boud.	R.
‡*Mollisia cinerella* Sacc.	W.
**M. fallax* (Desm.) Gill.	R.
**M. discolor* (Mont. et Fr.) Phill.	R.W.
**Pyrenopeziza mercurialis* (Fuckel) Boud.	
**Tapesia livido-fusca* (Fr.) Rehm	
†*T. melaleucoides* Rehm	
†*Trichobelonium obscurum* Rehm	R.

PYRENOMYCETES:

**Didymella tosta* B. & Br.	P.
†*Nectria purtonii* Grev. (=*applanata*)	R.
**Valsa pustulata* Auersw.	W.

AGARICALES:

†*Collybia stephenocystis* Kühn. & Rom.	R.
†*Coprinus miser* Karst. *sensu* Lange	W.
†*Galerina badipes* (Fr.) Kühner	W.
†*G. graminea* Vel.	W.
†*Naucoria granulosa* Lange	R.

HYPHOMYCETES:

†*Coniothecium betulinum* Corda	R.
**Gonotrichum caesium* Nees	W.

COELOMYCETES:

†*Phomopsis revellens* von Höhn., on *Corylus*	W.

BOOK REVIEWS

Bumblebees, by **John B. Free** and **Colin G. Butler.** Pp. 208 with 1 coloured plate and 24 monochrome plates. *New Naturalist* Series, No. 40, Collins. 25/-.

There are, alas, very few insects which do not induce antipathy in some inhibited bosom—butterflies, of course, ladybirds and bumblebees are almost the tally of exceptions. No spring is complete without the bumblebees with their tireless activity, cheerful noise and handsome appearance. Our British species were admirably monographed as long ago as 1912 by F. W. L. Sladen in a volume (*The Humble-bee*, Macmillan) now rare and expensive.

The present most welcome addition to the *New Naturalist* series provides a comprehensive résume of the available knowledge and brings up to date a fascinating subject. Dr. Ian Yarrow of the British Museum (Nat. Hist.) has provided excellent appendices on the identification and distribution of the British species. All aspects of the biology of bumblebees are covered in the well-written text; in some cases, however, the available information is still a little sketchy.

Two appendices are usefully devoted to the interesting subject of the collection, establishment under artificial conditions and study of bumblebee colonies, a matter in which Sladen was an enthusiastic pioneer. The related Cuckoo bees (*Psithyrus*) and some of the more important enemies of bumblebees are briefly dealt with.

How sad it is to note that the photographic colour plates of 1912 are so much better than the photographic frontispiece of 1959 !

The availability of a reasonably priced and readily obtainable book on any popular group of plants or animals is a great incentive to keen naturalists who have been restrained by the lack of literature. Bumblebees now offer a field for activity, for here is the book we have been waiting for.

W.D.H.

British Insects. A simplified Key to the Orders by **P. Skidmore.** Pp. 19 with numerous illustrations. Messrs. Flatters & Garnett Ltd., 309 Oxford Road, Manchester 13. Published July 1958. Price 2/6.

There is a dearth of easily available simple keys to the orders of British insects suitable for the use of schools, biology classes, young naturalists, etc. The present pamphlet will go some way to supplying this need. It is excellently and clearly printed by the offset-litho process and the illustrations are very good. It is a pity however that some indication of the natural size of the species illustrated was not included. The distinctions between insects and other arthropods are followed by a key to the orders of insects, a selected bibliography and a glossary. The characters selected for the original keys are such as can be observed by means of a hand lens and are generally satisfactory. This useful publication, by a well known and respected firm of Natural History suppliers, should achieve a wide distribution.

W.D.H.

Handbooks for the Identification of British Insects. Published by the Royal Entomological Society, 41 Queen's Gate, London S.W.7.

Vol. VI, part 2(c) Hymenoptera Symphyta, Section (c) by **R. B Benson,** pp. 139-252, figs. 341-815, with correction slip to parts (a) and (b), and p. i-vi of supplement. Published 3rd Oct., 1958. Price 20/-.

Vol. VIII, part 2 (a) Hymenoptera Chalcidoidea, Section (a) by **Ch. Ferrière** and **G. J. Kerrich.** Pp. 40, 79 + 5 figs. Published 28th Nov., 1958. Price 8/6.

Vol. V part 5(b) Coleoptera Phalacridae by **R. T. Thompson.** Pp. 17, 47 figs. Published 28th Nov., 1958. Price 3/6.

It is with great pleasure that we welcome the long awaited final part of Mr. Benson's revision of the British sawflies. This deals with the difficult subfamily Nematinae and has long been an urgent *desideratum* since Morice's preliminary 'Help-notes' (1903-1916) are quite out of date and misleading. The inherent taxonomic problems in this subfamily render it impossible to produce an easy guide to their identification but if Benson's keys are followed carefully it should be possible to recognise the majority of the species. A number of species are noted as British for the first time and a few necessary changes in nomenclature are made. There appear to be relatively few major errors—surely the quotation of *Laurus* as a foodplant of *Pristiphora pallipes* (p.143) is an error for the rosaceous Cherry-laurel, *Prunus laurocerasus*, the so-called 'Laurel' of our gardens, quite unrelated to the true laurels (*Laurus*). Unfortunately there are a rather large number of minor errors, unimportant but disfiguring, which suggests hurried proof-reading. However nothing can seriously detract from our pleasure in having the completed work in our hands.

Ferrière and Kerrich present an introduction to the extensive and extremely interesting superfamily Chalcidoidea with a useful 'practical' key to the families, differing, it may be noted, from that of Richards in the introductory volume on Hymenoptera (1956, vol. VI (I)). The non-British Agaontidae, Leucospidae and Eucharitidae are briefly treated and fuller treatment is given to the families Chalcididae, Perilampidae, Cleonymidae and Thysanidae. These small families contain but a few British species but at least a modest commencement has been made on this large and neglected section of the British fauna.

The coleopterous family Phalacridae, although a small one, has long presented some problems for British coleopterists who will welcome the excellent treatment by Mr. Thompson of our 3 genera and 15 British species. W.D.H.

The Freshwater Life of the British Isles; a guide to the plants and invertebrates of ponds, lakes, streams and rivers, with an additional chapter on the vertebrates, by **John Clegg.** Pp. 352, with 16 colour and 51 black and white plates and 95 text figures. *Wayside and Woodland* series, Warne, 2nd edition, 1959. 21/-.

It is pleasing to see that the popularity of this very competent introduction to freshwater life, which was well received in this journal in 1952 on its first appearance has necessitated a second edition. The opportunity has been taken to bring nomenclature up to date, correct a few errors, and make minor additions to the text, whilst a few coloured plates of insects and molluscs from the author's *Observer's book of pond life* have replaced some unnecessary views of ponds and streams. Freshwater life has a strong fascination for the amateur naturalist and it is a pleasure to recommend this book. J.H.F.

A Guide to Freshwater Invertebrate Animals, by **T. T. Macan.** Pp. x+118 with 202 line drawings. Longmans, 1959. 11/6.

This is a guide to the families of freshwater invertebrates for the serious sixth form, university and amateur student. A series of dichotomous keys, illustrated by excellent line drawings and with brief descriptions of form and habit where these will aid identification, ensures reliable determination. References to the literature that will provide specific determination are given throughout the text, a very useful feature. The book ranges from *Volvox* and *Amoeba*, through worms and crustacea to aquatic insects and larvae, the selection of species for illustration being admirable. Some sections receive a fuller treatment than others; in the Mollusca, 25 species of Gastropoda out of a total of 38 are illustrated, but only 9 beetles from more than 200 species.

There is no padding to this little book, and Dr. Macan can be congratulated on providing clearly and concisely exactly what is required. J.H.F.

The Dynamics of Behaviour by **R. S. Woodworth.** Pp. 404. Methuen, London, 1959. 36/-.

This may be regarded as a culmination of Professor Woodworth's life-long tutelage of the dynamics of psychology. Its primary reference is indeed to human psychology but a great part of its content is based upon an analytical study of animal behaviour as observed in laboratory animals expressly isolated and conditioned so that the causality of behavioural responses can be, as it were, dissected out. This experimental procedure wherein animals are artificially subjected to appetite and stress and the pattern of inevitable response elucidated, is directly complementary to the European school of behavioural study which has grown up around the work of Lorenz. Movement towards a more intimate liaison of the two schools has recently developed almost the momentum of a shotgun wedding and the publication in this country of Professor Woodworth's work which is developed from his lecture course at Columbia University will do a great deal to further the match.

One point immediately emerges. The fixity of behaviour which is imposed upon an animal by its necessity for producing just those effector movements which will elicit the appropriate responses from its fellows is easy enough to comprehend. The evolution of such behaviour patterns is not so readily explained unless there is a reservoir of casual unpurposeful activity which may fortuitously produce a new movement pattern to a fresh need. Animal play would seem to provide just this reservoir.

A.H.

Paths Across the Earth by **Lorus and Margery Milne.** Pp. xii + 216 with 36 text figures. Cassell. 16/-.

The authors of this book have gathered together a mass of information relating to the seasonal movements of living creatures in many parts of the world and re-assembled it in the form of sixteen instructive chapters.

That many living creatures make seasonal movements, either vertically or horizontally, is well known but what is still obscure is the mechanism that triggers off these migrations and controls the course they take. Most naturalists know that the Salmon returns to spawn in the river in which it spent the first year or two of its life and that the Artic Tern may cover as much as 25,000 miles in the course of its double journey stretching almost from pole to pole. The great insect migrations are less well known and we in Europe have nothing to parallel the spectacular migrations of the Monarch butterfly in the U.S.A. or the movements of locusts in Africa or the Middle East. This is the kind of information that will be found in this well written book and it is recommended to all who are interested in the seasonal movements of living creatures.

E.W.T.

Survey on the Galapagos Islands, by **Irenäus Eibl-Eibesfeldt.** Pp. 31 with maps and 60 photographic illustrations. Unesco Mission Reports No. 8. H.M. Stationery Office. 3/6.

Few places in the world can rival the Galapagos Islands for the great interest and the historical associations of their biology. *The Origin of Species* focussed attention on the value of the living documents of evolution which Darwin had discovered in the Galapagos fauna, yet since then the persecution which had begun with the buccaneers has been continued almost unchecked, for although laws protecting wild life were enacted in 1934 their enforcement has never been observed and the settlers continue to plunder the fauna. The situation is now so serious that only prompt and vigorous measures can prevent the damage from becoming quite irreparable.

This admirably illustrated survey is the outcome of three and a half months of observation by a team of naturalists whose visit was sponsored by Unesco and the International Union for the Conservation of Nature and Natural Resources. It deals with the present status of the indigenous reptiles, birds and mammals on the various islands and the many introduced and predatory animals. The special problems of wild life conservation are considered and constructive suggestions made for realistic nature conservation. These include the establishment of a biological station at a proposed site on Indefatigable Island. The interest of the Ecuadorian authorities has been enlisted in this project but its realisation will depend mainly upon the extent to which they will actively support the scheme; and unless this is done without delay it will be too late.

W.A.S.

The Salmon by **J. W. Jones.** Pp. 192, 19 photos. *New Naturalist* Series, Collins, London, 1959. 18/-.

The salmon, on account of its comestibility and the sporting difficulties of persuading a non-feeding fish to snatch at a lure has been a much publicised fish since the days of the apocryphally surfeited apprentices. There is a 'mountain of information' concerning the fish, as Buckland remarked long ago and the author, with his colleague in research G. M. King, has piled Pelion upon Ossa. It is remarkable, therefore, that Dr. Jones' main stress throughout the present work is upon what he terms our 'ignorance of the *fundamental* biology of the Salmon'. This, then, is no definitive monograph but a survey of the phylogeny, distribution, life history and behaviour of the fish, with some consideration of salmon rivers and fisheries. The behavioural studies derive entirely from the pioneer work done by the author with the aid of an observation tank, in which salmon were introduced to spawn, at the Dee Fishery Board's station on the River Alwen. Over ninety spawnings were watched in the tank and their interpretation is authoritative though I wonder if sufficient account is taken of perception through the lateral line in assessing the quiver of the male fish, which has strong epigamic function but which also occurs in circumstances which rule out this function—or appear to do so.

It is pleasing to see that Dr. Jones comes down firmly against the wanton destruction of predators and alleged predators in the interests of salmon fisheries though he stresses the need for some investigation in this direction. There is no doubt, however, that the main limiting factor on the increase of the species in this country is pollution with its accompanying evils of obstruction and water abstraction and it is emphasised that the main function of the newly created river boards should be to ensure, by consultation, that these deleterious effects of human activity should be obviated before the many new projects before us have left the drawing board.

Four appendices and a full bibliography complete a fascinating story which it has been possible only to hint at in review.

E.H.

What Bird is That ? by **Neville W. Cayley.** Pp. 344 with 37 coloured plates and 14 photographs. Angus & Robertson, Sydney, 1959. 45/-.

Tasmanian Birds, by **Michael Sharland.** Pp. 176 with 13 photographs, 1 in colour. Angus & Robertson, Sydney, 1959. 21/-.

Cayley's work has run through many reprintings since it was first published in 1931 but this second edition is its first revision. It was the author's first intention to provide a popular handbook to the birds of the continent, illustrated by his own most capable hand, which would initiate an era of popular bird-watching. How well this has succeeded may be seen by a comparison of the two editions and it would have been Cayley's pride and joy, had he lived another eight years, to have seen how much can now be added on the basis of an increased knowledge which very largely stems from the interest engendered by the original work. When the reviewer was in Australia, a second-hand copy was hard to come by and the limited printings of the war years were soon gone but when finally obtained it opened the door to at least the ready recognition of the birds of an avifauna which differs, from state to state to such a degree that to have compressed the necessary information within a single cover was the work of genius.

Like its predecessor, this edition treats all recognised forms as good species, even though they are obviously allopatric forms and this can cause some confusion in areas of intergradation, but this over-simplification will doubtless enforce its own correction as knowledge increases. An appendix of a baker's dozen species bows to the fact that the commonplace birds of at least the cities of Australia are introduced species, usually of British origin. The Goldfinch for example, is commoner in Melbourne than anywhere in the British Isles.

Sharland's work deals with a much more limited avifauna in a very similar manner but without the plates which make the major book so valuable for a quick identification. The two may be regarded as in part complementary, however, since the treatment of the Tasmanian birds is a little more expansive.

It is a useful corrective to an over parochial attitude to avian distribution to note that the Tasmanian list, apart from importations, shows over thirty species in common with our own.

A.H.

CONTRIBUTORS

Abercrombie, R. G., 6
Anderson, M. C., 113-127
Andrews, S. M., 113-127
Armitage, J., 35

Belcher, J. H., 80
Blackwell, E. M., 74, 92
Blezard, E., 128
Bramley, W. G., 103-105, 130-131, 132-133, 140-141
Branson, F. E., 102
Brook, A. J., 81-83

Chinery, J. M., 113-127
Chislett, R., 10-11, 36, 37-74, 76, 128, 129, 131, 133, 135, 137
Crackles, E., 132

Evans, G. B., 113-127

Flint, J. H., 11-12, 17-18, 106, 133-134, 142

Geyer, T. A., 33
Gilmour, E. F., 22-23
Good, R., 99-100
Govett, J. R., 98
Grainger, Miss J., 27
Grainger, Mrs. M., 101

Hazelwood, A., 31, 33, 77-80, 109, 110, 111, 143, 144
Hazelwood, E., 9-10, 34, 35, 84, 110, 144
Hewitt, M. S., 112
Hewson, F., 12-15, 129, 135
Hincks, W. D., 19-20, 75-76, 141, 142
Houseman, Mrs. F., 3-4

Iles, D. B., 98
Ingram, H. A. P., 113-127

Jackson, R. V., 85-90

Kerr, T., 106

Lee, A. H. B., 5, 101
Lewis, J. R., 34, 90
Lovis, J. D., 35, 107

Mather, J. R., 93-94
Morehouse, E. M., 11, 130, 131-132, 134

Nelson, G. A., 108, 127-128

Pashby, B., 131
Payne, Mrs. J., 134
Percival, E., 105
Ping, A. W., 111
Pringle, G. E., 109
Pyrah, M., 6

Richards, C. M., 113-127
Rob, C. M., 23-26, 31, 130, 134
Robinson, E., 112
Rushforth, D.A., 91-92, 98
Russell, H. M., 20-22, 98

Sayer, M. M., 111
Shaddick, C., 34
Shaw, G. A., 26-27, 100, 138-139
Shaw, S., 15-17
Skinner, E. S., 96-98
Sledge, W. A., 30, 107, 108, 135-136, 137-138, 143
Spencer, K. G., 1-3, 95-96

Taylor, E. W., 32, 143
Thompson, E., 83-84

Walker, A. F. G., 5-6

CLASSIFIED INDEX

COMPILED BY G. A. SHAW

Algae.—*Ectochaete endophytum* (Mobius) Wille in the Lee Valley, Hertfordshire, J. H. Belcher, 80; Notes on Desmids of the Genus *Staurastrum*. III. *Staurastrum paradoxum* Meyen in the Jenner Herbarium of the British Museum, A. J. Brook, 81-83.

Amphibia.—Annual Report, Mrs. E. Hazelwood, 10.

Book Reviews.—Amateur Photographer.—Photograms of the Year, 1957, 36.
Angus & Robertson (Pub.).—West Australian Wildflowers, 35.
Armstrong, E. A.—The Folklore of Birds, 32.
Bardsey Bird and Field Observatory, 1957 Report, 76.
Benson, R. B.—Handbooks for the Identification of British Insects, Vol. VI, part 2 (c), Hymenoptera Symphyta, 142
Blond, G.—Great Migrations, 31
Bristowe, W. S.—The World of Spiders, 33
Burton, M.—Phoenix Re-born, 109
Casselman, W. G. B.—Histochemical Technique, 112
Cayley, N. W.—What Bird is that ? 144
Clapham, A. R., Tutin, T. G., and Warburg, E. F.—Excursion Flora of the British Isles, 107
Clegg, J.—The Freshwater Life of the British Isles, 142
Crisler, L.—Arctic Wild, 110
Dandy, J. E.—List of British Vascular Plants, 30-31
Denman, D. R., Switzer, J. F. Q., and Sawyer, O. H. M.—Bibliography of Rural Land Economy and Landownership, 1900-1957, 34
Dowdeswell, W. H.—Practical Animal Ecology, 90
Dunton, S.—Hold that Tiger, 110
Educational Productions Ltd. (Pub.).—Film Strips: Nature in Autumn; Weeds of Cultivated Land; British Reptiles and Amphibians, 112
Ferriére, Ch. & Kerrich, G. J.—Handbooks for the Identification of British Insects, Vol. VIII, part 2(a), Hymenoptera Chalcidoidea, Section (a), 142
Fitter, R. S. R.—The Ark in our Midst, 110
Fochler-Hauke, G.—Our World and its Beginnings, 112
Free, J. B. and Butler, C. G.—Bumblebees, 141
Grant, V.—Natural History of the Phlox Family, 107
Grey, F. G.—Ornithological Report for Northumberland and Durham for 1957, 36
Grigson, G.—A Herbal of All Sorts, 108
Gurney, R.—Trees of Britain, 111
Hardy, Sir A.—The Open Sea: Vol. 2, Fish and Fisheries, 105
Harrison, D. Footsteps in the Sand, 111
Huxley, J.—The Story of Evolution, 35
Hyman, L. H.—The Invertebrates, Vol. 5, Smaller Coelomate Groups, 106
Jones, F. H.—The London Bird Report for 1957, 36
Jones, J. W.—The Salmon, 144
Kidd, L. N. and Brindle, A.—The Diptera of Lancashire and Cheshire, Part I, 98
Koenig, L.—Tales from the Vienna Woods, 34
Levy, J. de B.—Wanderers in the New Forest, 34
Lewis, P.—British Wild Flowers, 31
Liers, E.—A Beaver's Story, 110
Linssen, E. F.—Beetles of the British Isles, 106
Lobsack, T.—Earth's Envelope, 111
Lysaght, A. (Ed.).—Directory of Natural History and other Field Study Societies in Great Britain, 108.
Macan, T. T.—A Guide to Freshwater Invertebrate Animals, 142
Mason, H. L.—A Flora of the Marshes of California, 30-31
Mathot, G.—Les Papillons, 94
Meikle, R. D.—British Trees and Shrubs, 31
Millot, J. and Anthony, J.—Anatomie de Latimeria chalumnae, Tome I, 32
Milne, L. and M.—Paths Across the Earth, 143
Northumberland, Durham and Newcastle-upon-Tyne, Natural History Society of: Transactions, Vol. XIII, No. 1 (Ornithological Report on the Farne Islands for 1957; and Contributions to the Study of the Farne Islands (a) General Introduction), 36
Platt, R.—Worlds of Nature, 35
Sanderson, I. T.—How to know the American Mammals, 35

Schiller, C. H. (Ed.).—Instinctive Behaviour, 109
Sharland, M.—Tasmanian Birds, 144
Sick, H.—Tukani, 110
Skidmore, P.—British Insects, 141
Snow, D. W.—A Study of Blackbirds, 33
Speakman, F. J.—The Young Naturalist's Year, 35
Stearn, W. T. (Ed.).—Linnaeus' Species Plantarum Facsimile, Vol. 2, 108
Thompson, R. T.—Handbooks for the Identification of British Insects, Vol. V, part 5(b), Coleoptera Phalaridae, 142
Wells, A. L.—The Observer's Book of Sea Fishes, 34
Wells, A. L.—Garden Ponds, Fish and Fountains, 84
Woodworth, R. S.—The Dynamics of Behaviour, 143

Botany (Flowering Plants).—Some Recent Introductions to the Flora of Otley and District, Mrs. F. Houseman, 3-4; *Corrigiola littoralis* in the Castleford Area, M. Pyrah, 6; General Report for 1958, C. M. Rob, 23-24; Plant Records, C. M. Rob, 24-26; Some Old East Riding Plant Records, R. Good, 99-100; Vegetational Studies at Semerwater, H. A. P. Ingram, M. C. Anderson, S. M. Andrews, J. M. Chinery, G. B. Evans and C. M. Richards, 113-127; *Lathraea clandestina* L. at Askham Richard, G. A. Nelson, 127-128; Excursions: Kirby Moorside (C. M. Rob), 130; Birdsall (E. Crackles), 132; Bishop Wood (C.M.R.), 134; Askern (W. A. Sledge), 135-136; Bowes (W.A.S.), 137-138; Keld (Section Meeting), 139

Bryophyta.—Annual Report, 1958, G. A. Shaw, 26-27; Excursions: Aketon Marsh (F. E. Branson), 102; Bowes (G. A. Shaw), 138-139. Lincolnshire Bryophyte Herbarium, 139

Coleoptera.—Annual Report, 1958, S. Shaw, 15-17.

Diptera.—Annual Report, 1958, H. M. Russell, 20-22; Excursions: Kirby Moorside (H. Henson), 130

Entomology (General).—Annual Report, J. H. Flint, 11-12; Excursions: Bishop Wood (J. H. Flint), 133-134; Bowes (Mrs. H. E. Flint), 137

Hemiptera.—Annual Report, 1958, J. H. Flint, 17-18.

Hymenoptera.—Annual Report, 1958, W. D. Hincks, 19-20

Lepidoptera.—Annual Report, F. Hewson, 12-15; Excursions: Kirby Moorside (F.H.), 120; Bishop Wood (Mrs. J. Payne), 134; Askern (F.H.), 135

Mammalia.—Annual Report, 1958, Mrs. E. Hazelwood, 9-10; Excursions: Kirby Moorside, 129; Birdsall, 131

Mollusca.—Annual Report, 1958, Mrs. E. M. Morehouse, 11; Excursions: Kirby Moorside (E.M.M.), 130; Birdsall (E.M.M.), 131-132; Bishop Wood (E.M.M.), 134

Mycology.—Annual Report, Miss J. Grainger, 27; The Why and Wherefore of the Soapy Potato, Miss E. M. Blackwell, 74; Fungus Foray at Malham, Aug. 29th-Sept. 2nd, 1958, W. G. Bramley, 103-105; Excursions: Kirby Moorside (W.G.B.), 130-131; Birdsall (W.G.B.), 132-133; Spring Foray at Pateley Bridge (W.G.B.), 140-141

Obituary.—E. G. Bayford, 75-76; Miss D. Hilary, 101; A. Thompson, 100.

Ornithology.—A Survey of Swift Nesting-Sites, K. G. Spencer, 1-3; Bird Migration Course at Grantley Hall Adult College, Nov. 14th-16th, 1958, A. F. G. Walker, 5-6; A Hen-Harrier (*Circus cyaneus cyaneus*) in the Peak District, R. G. Abercrombie, 6; Interim Report, 1958, R. Chislett, 10-11; Annual Report for 1958 of the Ornithological Section, R. Chislett (including report on the Spurn Bird Observatory (G. H. Ainsworth and R. Chislett), 37-40), 37-74; A Census of Rookeries within the Leeds Area, 1955, R. V. Jackson, 85-90; Attacks on Migrant Passerines by Gulls, D. A. Rushforth, 91-92; An Account of the Warblers (*Phylloscopus* and *Sylvia*) passing through Knaresborough Sewage Farm during June to September, 1958, based mainly on Trapping Figures, J. R. Mather, 93-94; On the Increase of the Common Gull in East Lancashire, K. G. Spencer, 95-96; Bluethroats and Associated Species at Spurn in 1958, E. S. Skinner, 96-98; Inland Breeding of Greater Black-backed Gull, D. B. Iles, J. R. Govett and D. Rushforth, 98; Ditto (Correspondence), 128; Excursions: Kirby Moorside (R. Chislett), 129; Birdsall, 131; Bishop Wood (R.C.), 133; Askern (R.C.) 135; Bowes (R.C.), 137

Orthoptera and Neuroptera.—Annual Report, A. Brindle, 18-19

Pisces.—Annual Report, Mrs. E. Hazelwood, 10

Planarians.—Land Planarians in Yorkshire, E. Thompson, 83-84

Plant Galls.—Annual Report, E. F. Gilmour, 22-23

Reptilia.—Annual Report, Mrs. E. Hazelwood, 10; Seasonal Weight of a European Tortoise, E. M. Blackwell, 92

Yorkshire Naturalists' Union.—Joint Vertebrate Section Meetings in 1958, A. H. B. Lee, 5; Annual Report, 1958, 7-29; Presidential Address, 'The Museum and the Naturalist' by Alfred Hazelwood, 77-80; Y.N.U. Natural History Exhibition, 101

Circular No. 582

Yorkshire Naturalists' Union.

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Assistant Hon. Treasurer and Membership Secretary:
G. A. SHAW, Esq., The Department of Botany, The University, Leeds, 2.

Hon. General Secretary:
Miss C. M. ROB, Catton Hall, Thirsk.

Sectional Meetings

ENTOMOLOGICAL SECTION

Saturday, March 14th, 1959, 2-30 p.m. Tolson Memorial Museum, Rawnsknowle Park, Huddersfield. (By kind permission of the Director, Mr. E. W. Aubrook.)

Mr. H. M. Russell, F.R.E.S., will speak on the leaf-mining flies, and Mr. E. F. Gilmour, F.M.A., will speak on the longhorn beetles. These will be followed by an exhibition of specimens to which all members are invited to contribute. Light refreshments will be available at the Museum's café during the break for tea.

VERTEBRATE ZOOLOGY SECTIONS

Spring Meeting.

Saturday, March 21st, 1959, 3-15 p.m. General Lecture Theatre (Baines Wing), Leeds University.

1. Spurn Bird Observatory Report for 1958 by the Hon. Secretary, G. H. Ainsworth, Esq.
2. The Yorkshire Ornithological Report for 1958, presented by R. Chislett, Esq.
3. A description of two expeditions to the island of Foula in 1957 and 1958, by R. F. Dickens, Esq. Illustrated by colour slides and, it is hoped, by sound recordings.

Cups of tea will be provided before the third item which will start at 6 p.m. Entrance to Lecture Theatre is in University Road, reached by a north bound No. 1 bus from City Square.

BRYOLOGICAL SECTION

Spring Meeting.

Saturday, April 11th, 1959. Excursion to Aketon Marsh, Follifoot, near Harrogate.

Meet Harrogate bus station in time for the 10-55 a.m. Spofforth bus. Carry lunch.

Autumn Meeting.

The Autumn Meeting will be held September 19th to 20th at Teesmouth. Details will be announced later.

MYCOLOGICAL SECTION

Spring Foray.

Thursday, April 9th, to Monday, April 13th, 1959. Pateley Bridge.

Headquarters.—Crown Hotel, Pateley Bridge (Mrs. E. A. Castle). Telephone Pateley Bridge 217. Charge 17/6 per day, full board. Single accommodation is very limited so that if members could agree to share a room where possible it would be a help. Mrs. E. A. Castle will do her best to accommodate everybody either at the Crown or nearby. A convenient workroom is available at the Crown, and the emphasis will be on collecting the smaller fungi for which the area has not previously been specifically worked.

EXHIBITION MEETING

Saturday, April 18th, 1959, in the **Biological Laboratories, Leeds University.**

Members and Associate Members are invited to contribute to the Y.N.U. Exhibition Meeting. Those wishing to do so are asked to get in touch with Mr. A. H. B. Lee, 25 Church Wood Avenue, Leeds 16, as soon as possible so that bookings for the available space may be made. The nature of the exhibit and some indication of the space required should be stated when the booking is made.

It is hoped that as many members and associates as possible will attend this meeting which will provide an opportunity for exchange of views and information. The meeting will be open to the public and members are asked to bring guests with them.

Light refreshments will be available.

Admission free.

CIRCULAR No. 583

Yorkshire Naturalists' Union.

President:
H. HENSON, D.Sc., F.R.E.S.

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Assistant Hon. Treasurer and Membership Secretary:
G. A. SHAW, Esq., The Department of Botany, The University, Leeds, 2.

Hon. General Secretary:
Miss C. M. ROB, Catton Hall, Thirsk.
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Divisional Secretary:
I. A. LAWRENCE, Esq., 60 Cambridge Road, Linthorpe, Middlesbrough.

The 565th Meeting

WILL BE HELD AT

KIRBY MOORSIDE

V.C. 62

From Saturday, MAY 16th, to Monday, MAY 18th, 1959

HEADQUARTERS.—The King's Head Hotel, Kirby Moorside (Mr. and Mrs. P. R. Crawshaw). Bed and Breakfast, 21/-. Other accommodation available at The Black Swan (Mr. B. J. Mander). Bed and Breakfast only, 17/6 per head. In case of difficulty in obtaining accommodation please apply to the Divisional Secretary, who will try to find somewhere near.

TRANSPORT FACILITIES.—Kirby Moorside is on the main bus route from Ripon to Scarborough, operated by United Bus Company. This service is fairly frequent. This bus may also be connected at Pickering for travellers from the York area. A local service operated by the Ryedale Motors Ltd. runs from Malton to Kirby Moorside at 8-50 a.m., arr. 9-30 (Saturdays), 5-45 p.m., arr. 6-35 (Friday evening).

PREVIOUS MEETINGS.—The Union has been to Kirby Moorside in 1893 and 1910. To Farndale in 1934 and Hutton-le-Hole in 1937, Reports of these meetings may be found in back numbers of *The Naturalist.*

ROUTES.—Meet at Headquarters at 10-30 a.m. It is proposed to visit the following areas:

Kirkdale and Sleightholme Dale.

Douthwaite Dale and the gills to the west of Appleton Common.

Ordnance Survey Map 92.

PERMISSION.—We are very indebted to the following landowners for permission to visit their estates:

Lord Feversham, Major Shaw, Admiral Fuller, Colonel Holt, G. Wardle Dooley, Esq.

Many of these landowners are concerned about nesting birds at this time of the year which all members will appreciate. Also provisions have been made that growing timber, stone walls and fences should not be damaged. NO DOGS ALLOWED.

THE AREA.—The town of Kirby Moorside is situated upon the southern edge of the limestone range of hills that extend from the coast at Scarborough westwards. It lies between Helmsley and Pickering. The dales and gills that cut through these hills to the east and west of the town are well-wooded and very steep, but give rise to some considerable beauty and variety. Kirkdale is celebrated for its cave and higher up at Sleightholme Dale a fine sweep of aboriginal woodland extends along the slopes of the stream. To the north this calcareous country gives way to open expanses of moorland.

FLOWERING PLANTS.—This area has a wide and rich variety of flowering plants as the botanist will be aware from the above description. Although the Meeting is being held early it should still be possible to find some of the following: *Aquilegia vulgaris* L., *Cardamine amara* L., *Rubus saxatilis* L., *Lathraea squamaria* L., *Coeloglossum viride* (L.) Hartm., *Leucorchis albida* (L.) Schur., *Ophrys insectifera* L., *Neottia nidus-avis* (L.) L. C. Rich., *Listera cordata* (L.) Brown, *Narcissus pseudonarcissus* L., *Gagea lutea* (L.) Ker-Gawler, *Galeobdolon luteum* Hudson, *Daphne laureola* L., *Paris quadrifolia* L., *Convallaria majalis* L., *Ophioglossum vulgatum* L., and seeing that much of the ground has not been recently explored we may be able to add to the list.

ORNITHOLOGY.—Pheasant, Partridge, Snipe, Woodcock, Curlew and Lapwing are among the ground birds that nest in the higher area. At Douthwaite Dale all three British Woodpeckers occur and nest. There is also a heronry. Of the smaller birds the Warblers are well represented, including the Grasshopper and Wood-Warbler. Nuthatch occurs in Kirkdale. Colonel Baldwin of Sinnington writes that one pair of Swallows had one white young in 1957 and four white ones in 1958 in that area.

The birds of prey on the higher ground may make an interesting addition to the list.

LEPIDOPTERA (F. Hewson): The district is a very rich one, though insufficiently worked. Should the season be sufficiently warm *Euchloe cardamines* (Orange Tip), *Argynnis euphrosyne* (Pearl-Bordered Fritillary) and *Erynnis tages* (Dingy Skipper) may be on the wing. *Hamearis lucina* (Duke of Burgundy Fritillary) has been mentioned as occurring nearby. Many moths occur hereabouts, though perhaps beating for larvae will produce most numbers, *Episema caeruleocephala* (Figure of Eight) and many geometers should be found on hawthorns.

TEA AND MEETING.—Tea—At Headquarters on Monday at 5 p.m. Afternoon Tea, 3/6. High Tea, 6/6 (cold), 7/6 (hot). This will be followed by the meeting for the presentation of Reports, Election of New Members, and any other business.

The Next Meeting will be at Birdsall, V.C. 61, on June 6th, 1959.

CIRCULAR No. 584

Yorkshire Naturalists' Union.

President:
H. HENSON, D.Sc., F.R.E.S.

Hon. Treasurer:
M. M. SAYER, Esq., 10 The Gardens, Heath Road, Halifax.

Assistant Hon. Treasurer and Membership Secretary:
G. A. SHAW, Esq., The Department of Botany, The University, Leeds, 2.

Hon. General Secretary:
Miss C. M. ROB, Catton Hall, Thirsk.
Telephone: Topcliffe 224.

Divisional Secretary:
Miss E. CRACKLES, 143 Holmgarth Drive, Bellfield Avenue, Hull.

The 566th Meeting

WILL BE HELD AT

BIRDSALL

V.C. 61

On Saturday, JUNE 6th, 1959

HEADQUARTERS.—The village hall, Birdsall, will be available for use at tea-time. Drinks of tea will be provided. PLEASE BRING SANDWICHES.

TRAVEL.—The Birdsall Estate is not easily accessible except by road. Members requiring transport and those able to offer transport facilities are requested to contact the Divisional Secretary in good time.

MEETING PLACE and ROUTE.—Meet near the church in FRIDAYTHORPE (on the York to Bridlington road) at 10-30 a.m. It is proposed to proceed to Burdale and to investigate parts of the Birdsall Estate, reaching Birdsall by tea-time.

MAPS—The area is covered by the Ordnance Survey 1 in. Sheet No. 92.

PERMISSION.—Our sincere thanks are due to Lord Middleton for kindly granting permission to visit his estate.

Members should carry their membership cards with them. Dogs are not allowed and gates must not be left open. Care should be taken not to disturb game.

PREVIOUS MEETINGS.—Ornithologists visited part of the Birdsall Estate during the Malton week end meeting of 1958. See *The Naturalist*, No. 867, page 141.

Other meetings in the area: North Grimston, 1902 and 1950; Thixendale, 1956.

FLOWERING PLANTS.—During the 1950 Malton meeting, a visit was paid to Wharram and North Grimston and the following records are noteworthy: *Geranium pyrenaicum* Burm., *Ranunculus parviflorus* L., *Alyssum alyssoides* (L) L. (one plant, in seed field), *Fumaria parviflora* Lam. and *Specularia hybrida* (L) A. DC.

Catabrosa aquatica L. was plentiful in a stream near Wharram. *Chysosplenium oppositifolium* L. also grows here.

Other plants noted in the area include *Lathyrus montanus* (L) Bernh. *Cirsium eriophorum* occurs on the chalk in the area and interesting plants found on the Thixendale meeting included *Hippocrepis comosa* L. and *Petroselinum segetum* (L.) Koch.

CONCHOLOGY.—Species noted during the 1950 visit to North Grimston included: *Pyramidula rotundata* Müll, *Vitrea cellaria* Müll, *Helix nemoralis* L. *H. nemoralis v. rubella* Picard, *H. hortensis* Müll, *H. hortensis v. lutea* Moq-Tan, *H. hotensis v. albina* Moq-Tan, *H. hortensis v. philbertia* Moq-Tan, *H. hortensis v. bouchardia* Moq-Tan, *Arianta arbustorum* L., *Hygromia rufescens* Penn., *H. rufescens v. alba* Moq-Tan, *Helicella itala* L., *Theba cantiana* Montagu.

DIPTERA.—At North Grimston in 1950 Mr. C. A. Cheetham and Mr. K. G. Payne recorded the following species: *Tipula maxima* Poda, *T. oleracea* L., *T. vernalis* Mg., *Ctenohora pectinicornis* L., *Limnobia tripuntata* F. *Dicranmyia didyma* Mg., *Erioptera trivialis* Mg., *Ptychoptera paludosa* Mg., *Ptilonota guttata* Mg., *Limnophila dispar* Mg., *Empis stercorea* L., *E. trigamma* Mg., *and E. livida* L.

FRESH WATER BIOLOGY.—H. Whitehead made the following recordings at North Grimston in 1950. By a clear swift stream, the following species of caddis were on the wing: *Lemnophilus auricula* Curt., *Hydropsyche angustipennis* Curt., *Silo pallipes* F. Larvae of *Rhyacpohila* were taken and also a number of Pupal cases of *Hydroptila*. Specimans yielded several imagoes; the majority being identified as *H. maclachlani* Klap. and one as *H. forcipata* Etn. Three species of Epkemeroptera were identified—*Paraleptophlebia submarginata* (Steph), *Ecdyonurus venosus* (Fabr.-) and *Rhithrogena semicolorata* (Curt.) Only one species of *Plecoptera* was seen—*Nemoura cambrica* Steph.

In a pond, a species of Turbellarian worm, *Tetracelis marmorosa* (Müll) was recorded and constituted a new county record.

ORNITHOLOGY.—The birds of the area are, in general, those typical of woodland fringing the wolds and of open wold country.

Birds breeding in the area include Garden Warbler, Blackcap, Common Redstart and all three species of Woodpecker. Wheatear breed on the slopes. Curlew have invaded the area in recent years and several pairs breed. Nightjar and Long Eared Owls have been known to breed in the area, but there have been no recent records of them having done so. There has also been a report of Short Eared Owls breeding and Hawfinch is known to be present in the breeding season.

Corn Buntings are present on the higher ground and map references of occurrences are required in connection with the inquiry being organised by the Research Committee of the Ornithological Section. Tree Pipits too are curiously local and observations on their distribution would be of interest.

TEA and MEETING.—At the village hall, Birdsall at 5 p.m. A short meeting to hear reports of the day's work and for the election of new members will follow tea.

CIRCULAR No. 585

Yorkshire Naturalists' Union.

President:
H. HENSON, Esq., D.Sc., F.R.E.S.

Hon. Treasurer:
M. M. SAYER, Esq., 10 The Gardens, Heath Road, Halifax.

Assistant Hon. Treasurer and Membership Secretary:
G. A. SHAW, Esq., The Department of Botany, The University, Leeds, 2.

Hon. General Secretary:
Miss C. M. ROB, Catton Hall, Thirsk.
Telephone: Topcliffe 224.

Divisional Secretary:
Miss C. SHADDICK, Dawcross, Pannal, Harrogate.
Telephone: Harrogate 81477.

The 567th Meeting

WILL BE HELD AT

SELBY

for BISHOP WOOD

V.C. 64

On Saturday, JUNE 20th, 1959

HEADQUARTERS.—The George Hotel, Selby (Telephone: Selby 21). This is situated on the main street, about 100 yards from the Abbey. Teas: Ham and Tongue Tea, 7/6; plain tea, 3/-. **Please book** your teas by not later than Wednesday, 17th June, with the proprietress, Mrs. Pickering. Meet at Headquarters at 11 a.m. It is expected that there will be plenty of accommodation in cars to take members to Bishop Wood, which lies about three miles west of Selby.

PERMISSION has been kindly granted by the Forestry Commission. Please note that no dogs are allowed. Members are asked to have particular regard to fire precautions.

MAPS.—1 in. Ordnance Survey Map, Sheet 97 (York).

PREVIOUS MEETING.—The Union visited Bishop Wood in 1915, when 31 members, all men, attended. This was prior to extensive felling during the 1914-18 War. A further visit was made in 1931, and members who can do so are strongly advised to consult the full and interesting report of that meeting in *The Naturalist*, especially the extensive ecological report.

ORNITHOLOGY.—Ralph Chislett, M.B.O.U., writes: ' To assess the birds of a good area is always an interesting exercise. Bishop Wood is expected still to harbour the species that such a woodland should and did. Records from the wood have been few in recent years and to confirm the expected will be sufficient. If the season is forward, some birds will have ceased to sing and others will be rearing second broods.' In 1931 no hawks were seen, though a Sparrow Hawk had been shot shortly before. Reed Bunting, Sedge Warbler and Whinchat are mentioned in the 1931 report, but there is no reference to owls at all.

ENTOMOLOGY.—J. Flint writes: ' Bishop Wood provides some excellent habitats for insects and beating and sweeping along the rides through the woods should be particularly productive if the day is warm. The keepers' gibbets in the woods have previously been rewarding and should be searched for carrion beetles. Among beetles which occur are the Longhorn Beetles, *Clytus arietis* (L) and *Strangalia maculata* (Pod.). *Thanasimus formicarius* (L) has been taken in some numbers and conifers have produced *Pissodes castaneus* (Deg.) and the ladybird *Exochomas quadripustulatus* (L). Few beetles were recorded after the Union's last visit, although J. M. Brown listed a large number of Hemiptera.'

LEPIDOPTERA.—F. Hewson writes: ' This is undoubtedly one of the richest localities in the county, and Lepidopterists would be wise to take advantage of the arrangements. To mention but few of the " good things " which occur, *Heliophobus sordidus* (Large Nutmeg), *Hygrochroa syringaria* (Lilac Beauty), *Plagodis dolabraria* (Scorched Wing) and *Zeuzera pyrina* (Leopard) may be taken as imagines, whilst larvae of *Leucoma salicis* (White Satin) (regarded as a coastal species) may be found.'

BOTANY.—In a very full ecological report following the 1931 meeting, A. Malins Smith notes the persistance of the ground flora following felling in 1914-18, and notes the absence of Dogs Mercury and Wood Sanicle. He draws attention to the flora of the shallow ponds, including Iris, *Alisma plantago-aquatica, Juncus effusus, Lycopsis europeus* and *Solanum dulcamara.* Other species mentioned are *Hypericum pulchrum, Rhamnus cathartica, Rosa arvensis, Carex sylvatica, C. remota* and *C. leporina, Poa nemoralis, Scutullaria galericulata* and *Epipactis latifolia.* He notes that garlic was dominant in a very restricted area and that *Deschampsia caespitosa* was completely dominant in another area. Among unusual forms noted in 1931 were var. angustifolium (Huds.) of *Heracleum sphondylium* and *Arrhenatherum elatius* with very constricted inflorescences, possibly var. pauciflorum (Druce), as well as a form of Alsike Clover in which the carpel was represented by a leaf which was either uni- or trifoliate in different specimens.

TRAVEL FACILITIES.—Selby can be reached by bus or train, but as summer time-tables are not available at the time of going to press members are asked to verify times for themselves.

MEETING.—A short meeting for the presentation of sectional reports and the election of new members will follow tea at Headquarters.

Next Meeting.—July 4th. Askern, V.C. 63.

CIRCULAR No. 586

Yorkshire Naturalists' Union.

President:
H. HENSON, D.Sc., F.R.E.S.

Hon. Treasurer:
M. M. SAYER, Esq., 10 The Gardens, Heath Road, Halifax.

Assistant Hon. Treasurer and Membership Secretary:
G. A. SHAW, Esq., The Department of Botany, The University, Leeds, 2.

Hon. General Secretary:
Miss C. M. ROB, Catton Hall, Thirsk.
Telephone: Topcliffe 224.

Divisional Secretary:
R. S. ATKINSON, F.Z.S., 46 White Hill Avenue, Barnsley.

The 568th Meeting

WILL BE HELD AT

ASKERN

for the investigation of Shirley Pool and the surrounding district

On Saturday, JULY 4th, 1959

HEADQUARTERS.—Sharpe's Garage-Cafe, Rockley House, Owston, on the main road to Doncaster, about 1½ miles south of Askern. Plain tea (sandwiches, cakes and tea), 3/6 per person; Meat tea (ham or meat salad, cakes and tea), 6/- per person. Those wishing to order teas are asked to send a postcard to Mr. F. Sharpe not later than Saturday, June 27th.

PERMISSION.—Mr. F. Chambers of Doncaster has given permission to visit Shirley Pool. He suggests that members turn left from the main road at Owston and proceed along Rockley Lane until they reach the first farm gateway which lies a little past the southern tip of Shirley Wood; they should turn left again here. Another route nearer to Askern is to proceed along Rushy Moor Lane turning right along the side of the wood just before reaching the railway. This route is, however, a much rougher one.

TRAVELLING.—There will be frequent trains from Leeds (Central) and York to Doncaster; times of summer services should be checked. Buses operated by the West Riding Automobile Co. leave Marshgate at 45 mins. to and 15 mins. past each hour, returning from Askern to Doncaster at the same times.

MEET.—Headquarters 10-30 a.m.

BOOKS AND MAPS.—Lee's *Flora of West Yorkshire* gives a list of plants which were once found in the district which is covered by Sheet 103 of the 1-inch Ordnance Maps. There is a full account of a previous visit to the area in *The Naturalist* for 1938.

ORNITHOLOGY.—R. J. Rhodes: Much of this area, which is only some 20 ft. above sea level is under cultivation or used as grazing land. Between Askern and Moss are water meadows with woodland at Rushy Moor; other small woods have been drastically cut down. Birds that are likely to be seen are breeding Curlew, Snipe, Redshank, odd Mallard and perhaps Woodcock and Nightjar in the woodland. Here, too, Grasshopper, Garden and Sedge Warblers, together with the Blackcap may perhaps be found. Thick hedgerows about Moss may provide cover for lesser Whitethroat. Burnt Ings plantation, 4 miles south of Askern, is excellent for warblers, whilst Quail are occasionally reported in the vicinity of Balne. The usual common species associated with open country are plentiful, Lapwing and Corn Bunting being typical examples.

BOTANY.—Dr. W. A. Sledge: Previous visits to Shirley Pool have yielded *Carex pseudo-cyperus* L., *Cladium mariscus*, *Lastria thelypterist* (*T. palustris*), *R. lingua*, *Calamanagrostis lanceolata* (*C. canascens*) Roth., *Veronica anagellis-aquatica*, *Stellaria aquatica* (*Myosoton aquaticum*), *R. heterophyllus* Web., *Iris pseudo-coris*, *phragmites*. In a wet field occurred *Ophioglossum vulgatum*. Other plants in this area were *Lysimachia vulgaris*, *Rhamus frangula* (*Frangula alnus*), *R. Carthatica*, *Senecio erucifolius*, *Cerastium glomeratum*, *Alopecurus myosuroides* Huds.

In 1926 *Aulacomnium androgymum* was growing in profusion at Shirley pool with *hypnum riparium* alongside the ditches. Mr. C. A. Cheetham found the rare moss *Orthodontum gracile* var. *heterocarpum* at the base of oak trees near Fenwick.

CONCHOLOGY.—Mrs. Elsie M. Morehouse: There is not a large molluscan fauna in and near Shirley pool. My list of species is *Euconulus fulvus* Mull., *Acroloxis lacustris* L., *Limnea pereger* Mull., *L. palustris* Mull., *L. stagnalis* L., *L. glabra* Mull., *Planorbis albus* Mull., *P. umbilicatus* Mull., *P. vortex* L., *P. contortus* L., *P. fontanus* Lightfoot, *Segmentina nitida* Mull., *Physa fontinalis* L., *Aplecta hypnorum* L., *Paludestrina jenkinsi* Smith, *Bithynia tentaculata*, *P. Leachii* Shepherd.

COLEOPTERA.—J. H. Flint, F.R.E.S.: Many noteworthy species of beetles occurs in good collecting areas near the pool and if the weather is kind the day should be a profitable one. Among those recorded on previous visits are *Carabus granulatus* L., *Feronia oblongopunctata* F., *Melasis buprestoides* L., *Dorcus parallelopipedus* L., *Chrysolina marginata* L., *C. menthrasti* L., *Psylliodes dulcarae* Koch., *P. affinis* Pk., *Attelabus nitens* Scop., *Dorytomus dejeani* Faust., and *D. melanopthalmus* Pk. Among water beetles, seven species of *Haliplus* were taken in 1938 and *Gyrinus minutus* F., *Noterus clavicornis* Deg., and *Hygrotus impressopunctatus* Schall. have also been found.

LEPIDOPTERA.—G. E. Hyde, F.R.E.S.: The district round Askern is not regarded as rich in butterflies and moths of special note though given good weather there should be some good species. As regards butterflies the species to be expected would include *Maniola jurtina*, possibly *Aphantopus hyperantus*, *Coenonympha pamphilus*, *Polyommatus icarus*, and *Ochlodes venata*. Tree trunks and other likely resting places should be examined for ova and larvae of *Cerura vinula*, *Laothoe populi* and *Cerura hermelina*. In marshy places many occur: *Asthena albulata* and a look out should be kept for *Xanthorhoe montanata*, *Epirrhoe alternata*, and possibly *E. rivata*. Nettles should be examined for the larvae of *Aglais urticae*, *Vanessa atalanta* and *Nymphalis io*.

ODONATA.—G. E. Hyde: If the day is bright some of the larger Aeshna dragonflies should be appearing especially *Aeshna grandis* and *A. cyanea*.

TEA AND MEETING.—As accommodation is somewhat limited it is suggested that tea be from 4-30 p.m. onwards with the meeting following at 6 p.m.

Circular No. 587

Yorkshire Naturalists' Union.

President:
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Assistant Hon. Treasurer and Membership Secretary:
G. A. SHAW, Esq., The Department of Botany, The University, Leeds, 2.

Hon. General Secretary and Divisional Secretary:
Miss C. M. ROB, Catton Hall, Thirsk.
Telephone: Topcliffe 224.

The 569th Meeting

WILL BE HELD AT

BOWES

V.C. 65

On Saturday, JULY 18th, and Sunday, JULY 19th, 1959

HEADQUARTERS.—Unicorn Hotel, Bowes (Mr. Reader), bed and breakfast 18/6, please note there is very little single accommodation and members will have to be prepared to share a room.
Other accommodation at The Grove Private Hotel, bed and breakfast 15/-.

MEET.—Headquarters 10-30 a.m. Saturday 18th, 10 a.m. Sunday 19th.

TRANSPORT.—There is a train service of sorts from Darlington to Bowes on weekdays but no Sunday service. It has not been possible to find out about the buses but there is a service from Barnard Castle; members are warned therefore that the only certain transport is by private car.

Bowes was last visited by the Union in 1903, and it is hoped the area will be of interest to all sections. The village is on the main Scotch Corner to Brough road (A66) at the junction of the Barnard Castle/Brough road (A67) a short distance from the extensive moorland area of Stainmoor Forest and Bowes Moor. The River Greta rises just outside the Yorkshire boundary, and road, river and railway follow the same line over Stainmoor. The southern fork of Sleightholme Beck also rises in Westmorland and the two join a little below the natural rock bridge "God's Bridge", for some distance after this the river runs underground and the valley is dry in all but very wet years.

It is hoped to investigate the upper reaches of both valleys and if time permits some of the more wooded and lower ground in the Gilmonby area. Below Gilmonby

are the well known Brignal Banks which will probably be better ground for birds than the more exposed reaches above Gilmonby.

MAMMALIA—J. P. Utley. Since rabbits are an uncertain quantity at present it is possible that hares may head the list of species seen. Foxes and Badgers are not often recorded in this district and the absence of woodland does not make the country attractive for squirrels.

Moles advertise their presence in several areas, but stoats and weasels are not likely to be seen many times.

ORNITHOLOGY—J. P. Utley. It is not expected that a big list of species will be recorded. Due to the nature of the terrain many small passerine birds will be missing, but a good count of upland birds should be made.

The height of the song period will have passed and many young birds be making almost unrecognisable noises. There is a black headed gullery on Bowes Moor and the possibility of seeing merlin and short eared owl must not be ruled out.

The Greta is sure to provide grey wagtail and dipper, but the sandpiper is doubtful.

ENTOMOLOGY—J. Flint. Vice County 65 is the least recorded part of Yorkshire and notes on all species will be welcomed by recorders. The district should produce many of the upland caddis flies. Although it will be rather late in the year for ground beetles generally the genus *Bembidion* should be well represented and *B. redtenbacheri* K. Dan, *tibiale* Duft., *atrocoerulem, monticolor,* and *rupestre* should be sought along the streams where *Dianous coerulescens* and *Quedius auricomus* should occur among the thick moss.

FLOWERING PLANTS—C. M. Rob. The most interesting record for the Greta district is that of *Draba muralis* which is given in Baker's North Yorkshire as growing near the Waterfall where Sleightholme Beck falls over the "Main Limestone", *Sedum villosum* is also recorded from this station, while *Draba incana* and *Saxifraga hypnoides* are given for the cliff opposite Bowes known as Gilmanscar.

The master card for the 10 Km. square lists about 195 species, most of the work has been done in Baldersdale and on Shacklesborough Moss at the other side of the square and it is hoped to add a number of species to the list. Much of the area is moorland with restricted flora but there is no doubt that a great deal of this country has been very incompletely investigated.

There will be a meeting at Headquarters after tea on Sunday, July 19th, for the presentation of sectional reports and election of new members.

Circular No. 588

Yorkshire Naturalists' Union.

President:
H. HENSON, D.Sc., F.R.E.S.

Hon. Treasurer:
M. M. SAYER, Esq., 10 The Gardens, Heath Road, Halifax.

Assistant Hon. Treasurer and Membership Secretary:
G. A. SHAW, Esq., The Department of Botany, The University, Leeds, 2.

Hon. General Secretary:
Miss C. M. ROB, Catton Hall, Thirsk.
Telephone: Topcliffe 224.

Sectional Meetings, 1959

for consideration of the Annual Reports and to nominate Officers for the Sections and their Committees.

All Members and Associate Members of the Union are eligible to attend.

AND OTHER NOTICES.

AUTUMN FORAY
MYCOLOGICAL COMMITTEE
September 11th to 15th, 1959

Chairman: Dr. W. D. Hincks.

The Autumn Foray will be at Thornton le Dale.

HEADQUARTERS.—Warrington House, Thornton le Dale, near Pickering (Miss Maidment). Terms 16/6 per day. Members and friends should write direct to Miss Maidment stating their requirements, single accommodation is limited and it will help if members can arrange to share when possible. Other accommodation is available in the village. In case of difficulty, please write to the Hon. Secretary, Mycological Committee, Miss J. Grainger, Wilshaw, Meltham, Huddersfield. There is an adequate workroom at Warrington House.

ANNUAL MEETING.—This will be held at approximately 8 p.m. on Saturday, September 12th. The Chairman's Address, **Introduction to the Study of the Laboulbeniales,** will be delivered previous to the Annual Meeting.

PERMISSION.—Permission has been granted for visits to Castle Howard by Viscount Morpeth Kingthorpe, V. Lloyde-Greame, Esq., and the Duchy of Lancaster Estates, R. A. B. Hammersley, Esq.

BOOKS AND MAPS.—Will members, especially those with their own transport, please bring microscopes and any books they require. The area to be visited is on Sheets 92 (Pickering) and 93 (Scarborough) Ordnance Survey 1″ to 1 mile. A good cheap map for general use is the 6″ to 1 mile N. England-S. Scotland, issued by the Petrol Companies.

LEADER.—Our Recorder, Mr. W. G. Bramley, who knows this district well, and if for any reason he is not able to accompany the party will advise on routes, etc.

Sunday, September 20th.

Bryological Meeting.—This will be at Dent, V.C. 65, not at Teesmouth, V.C. 62 as originally planned. There is a special Ramblers' Excursion train from Leeds and Bradford. The times are not known at the time of going to press, so will any members who are interested please get in touch with Mr. G. A. Shaw, Department of Botany, The University, Leeds.

Thursday, September 24th.

The R.S.P.B. Film **Highland Birds** will be shown in the Great Hall, The University, Leeds, at 7-15 p.m.

Balcony seats 3/6, unreserved 2/6. Tickets available from A. H. B. Lee, D. F. Walker and R. F. Dickens. (For addresses see Membership Card.)

Saturday, September 26th.

Botany Section Meeting in the Botany Department, The University, Leeds, at 2-30 p.m. Entrance is *via* the Baines Door, University Road. After tea it is hoped that members who have colour photographs of plants will show a selection. Will all who have photographs please get in touch with the Hon. General Secretary. As time will be limited the number shown will have to be governed by the number of exhibitors.

Will all members of the section and Recorders of local Societies please send their records to the Recorder, Miss C. M. Rob, Catton Hall, Thirsk, by September 20th.

Saturday, October 10th.

Ornithological Section Meeting, Leeds University, Lecture Theatre (Baines Wing). Members requiring more details are asked to get in touch with the Hon. Secretary, Vertebrate Section.

Saturday, October 31st.

Entomological Section Meeting, The City Museum, Park Row, Leeds, at 2-30 p.m. During the afternoon there will be an exhibition of specimens to which all members are asked to contribute. The Business Meeting will be held after tea when the officers for the coming year will be elected and the reports of the past year considered.

Cups of tea will be available; members should bring their own food. Will all members with notes or records for the reports please send them to the appropriate recorders (addresses on Members Cards) or the Hon. Secretary, Mr. J. H. Flint, 7 Norfolk Mount, Leeds, and before October 19th.

All Coleoptera records to the section Hon. Secretary, please.

Saturday, November 14th.

Special Ornithological Section Meeting in the Tolson Memorial Museum, Ravensknowle Park, Huddersfield, at 2-30 p.m.

During the afternoon there will be a series of short papers:

A. H. B. Lee (Leeds), ' Wader Passage in the West Riding.'
Roy Crossley (Huddersfield), ' Duck Counting in the Huddersfield Area.'
J. R. Mather (Knaresborough), ' Five Years of Sand Martin Ringing.'
R. V. Jackson (Leeds), ' Rook/Jackdaw Roosts and Flight-lines.'
J. Cudworth (Ossett), ' Some aspects of Spurn winter flocks of Snow Buntings.'

Teas, 3/6 per person, should be ordered *via* the Director of the Museum before Wednesday, November 11th.

It is hoped that it will be possible to show a film and/or slides during the evening.

There will be a meeting of the Executive on Saturday, November 7th. Members will get a copy of the agenda nearer the date with details of meeting place, times, etc. Please book the date.

The **Annual Meeting** of the Union will be in **Hull** on December 5th.

Circular No. 589

Yorkshire Naturalists' Union.

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The 98th Annual Meeting

WILL BE HELD AT

HULL

By invitation of the Hull Scientific and Field Naturalists' Club, and by kind permission of the Vice Chancellor of Hull University.

On Saturday, DECEMBER 5th, 1959

TRANSPORT.—The University is easily reached from the coach station, which is opposite the side entrance of Paragon Station, by Hull Corporation bus Number 22, which starts from the side of the railway station. (East Yorkshire bus Hull-Cottingham, *via* Cottingham Road, can be used, provided the limited stop service is not operating (Stand 3)). Members arriving by car from Beverley should turn *right* at the first traffic lights after passing the city boundary, and those from Boothferry Road, should follow the *Inner* Ring Road marked by black arrows on a yellow disc; this road passes the University.

11-45 a.m. Executive Committee Meeting.

12-30 p.m. A three course hot lunch (5/6) will be available at the University, bookings for which *must* be made by November 25th to B. S. Pashby, 3 Ann's Place, Napier Terrace, Norfolk Street, Hull.

2-30 p.m. General Committee Meeting.

3-00 p.m. Annual General Meeting in the Physics Lecture Theatre when Professor Paul G. 'Espinasse, M.A., Head of the Department of Zoology, will welcome the Union, and the President, Dr. H. Henson, D.Sc., F.R.E.S., will deliver his Presidential Address "The Craneflies of Malham Tarn."

Tea and biscuits will be available from 4-15 to 5-0 p.m. The Zoological and Botanical Laboratories will be open for members to look round, by permission of Professor 'Espinasse, M.A., and Professor D. C. Robertson, M.A., B.Sc., Ph.D.

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Natural History for the North of England

EDITED BY
W. A. SLEDGE, Ph.D., B.Sc.,
THE UNIVERSITY, LEEDS,

with the assistance as referees in special departments of

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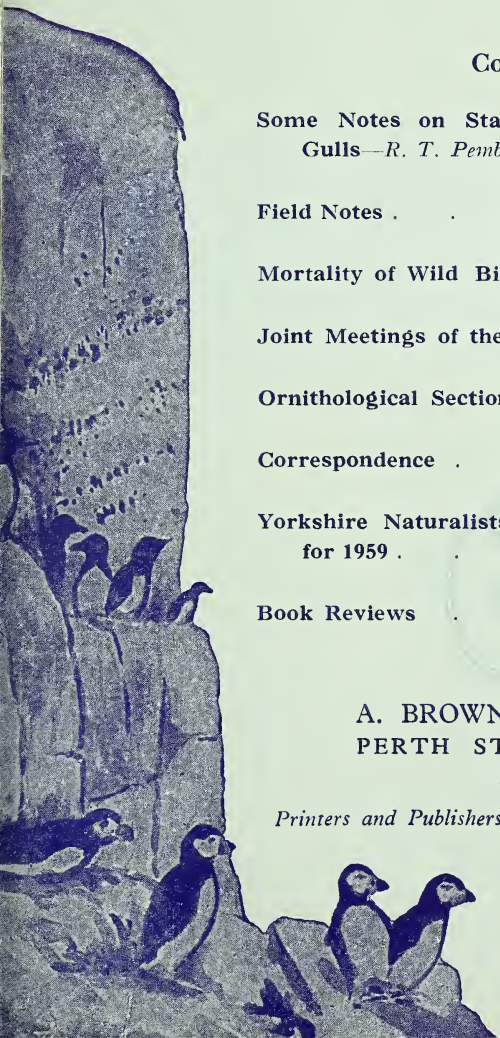

Contents

	PAGE
Some Notes on Starlings and Black-Headed Gulls—*R. T. Pemberton*	1-3
Field Notes	3-4
Mortality of Wild Birds on Roads—*J. R. Govett*	5-6
Joint Meetings of the Vertebrate Sections, 1959	7
Ornithological Section Meetings	7
Correspondence	8
Yorkshire Naturalists' Union: Annual Report for 1959	9-30
Book Reviews	6, 7, 8, 30-36

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LEPIDOPTERA COMMITTEE

By kind permission of the Director, a meeting for Lepidopterists is to be held at the City Museum, Park Row, Leeds, at 2-30 p.m., on Saturday, March 26th, 1960. Anyone interested will be welcome, whether Member, Associate or otherwise.

AGENDA:

1. "Lepidoptera and the Camera." G. E. Hyde, F.R.E.S.
2. A new List of Yorkshire Lepidoptera. (Discussion.)
3. Pug Moths. (Identifications.)

SUBSCRIPTIONS

In order to effect a saving on postage the Assistant Treasurer will not, in future, send receipts for payments made by cheque, unless specially requested to do so.

Spurn Bird Observatory. Warden for 1960, Salary £400. Duties will include collection of car admission fees, care of property, and ornithological field recording under the committee. Applications to The Chairman, R. Chislett, Brookside, Masham, Ripon.

NOTICE.

Exchange copies of the following periodicals may be had on loan from The Editor of *The Naturalist*, The University, Leeds 2, on receipt of stamped addressed envelope:

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THE NATURALIST

FOR 1960

SOME NOTES ON STARLINGS AND BLACK-HEADED GULLS

R. T. PEMBERTON

Department of Zoology, University of Leeds

During an investigation of helminth parasites in the starling (*Sturnus vulgaris*) and black-headed gull (*Larus ridibundus*) in Northern England during 1955-57 some features of interest and worthy of record were noted.

(*a*) Several authors have found a great excess of males over females in starling populations. Hicks (1934) and Odum and Pitelka (1939) in the U.S.A., and Bullough (1942) in Northern England observed a sex ratio of over 2 : 1 in favour of the males. Bullough (1942) and Kluijver (1935) found that males apparently do not breed until their second year, whereas females breed in their first year, and Bullough (1942)

Table 1

Sex Composition of Starling and Black-headed Gull Populations

Author	*Location*	*Total No. Birds*	% *Males*	% *Females*
	Starling			
Brouwer (1929)	Holland	305	52·1	47·9
Dobbin (1935)	Holland	290	57·2	42·8
Bullough (1942)	N. England	786	71·1	28·9
Pemberton	N. England	336	51·2	48·8
Hicks (1934)	U.S.A. (Ohio)	2522	67·9	32·1
Odum & Pitelka (1939)	U.S.A. (Illinois) (i) (ii)	112 361	68·7 64·3	31·3 35·7
Loefer & Patten (1941)	U.S.A. (Kentucky)	285	45·3	54·7
Stegman (1954)	U.S.A. (New York)	455	52·7	47·3
Kessel (1958)	U.S.A. (New York)	1447	57·6	42·4
	Black-headed Gull			
Pemberton	N. England	119	68·1	31·9

suggested that as an excess of males appeared to be a constant feature of starling populations the differences in breeding habits were responsible.

No differential mortality of eggs or young birds in the nest was noted by Bullough (1942), and of a hundred and one juveniles examined just off the nest 64 were males. Other surveys have shown a smaller excess of males (Table 1), but in one case there was a preponderance of females (Loefer and Patten, 1941).

During the present work in the same area worked by Bullough almost equal numbers of males and females were obtained (51% : 49%) from 336 starlings examined throughout the year.

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A true 50 : 50 sex ratio may be altered by many conditions and it may be asked to what extent the difference is real or merely apparent (Kessel, 1958). Since most of the data used for sex ratio studies have been gathered from massed flocks, and since the species shows few sexual dimorphisms, differences in brilliancy of plumage or display should have little effect on the results. Differences in behaviour between the sexes during various seasons of the year or during migration, however, could exert a profound effect. Indeed, Kessel (1958) found differences in the habits of the sexes during migration, in flocking and communal roosts, so that sampling would give an unbalanced sex ratio.

In view of the different behaviour patterns of the male and female starlings, it is difficult to determine the true sex ratio for the starling population as a whole. But as so many workers have found more males than females it may well be that an unbalanced sex ratio, favouring males, does actually exist in adult populations.

Kessel (1958) proposed that a preponderance of males in the starling population would mean a differential mortality rate between sexes. He observed a predominance of females in nestling starlings, but nest mortality was slightly higher in the females, causing the percentage of males to increase during the period in the nest. Six to eight months later, an even sex ratio was observed in first year birds, while in adult populations a significantly higher proportion of males was noted.

A similar preponderance of males was observed in black-headed gull populations, but the sex ratio was slightly greater than 2 : 1 in favour of the males (Table 1). Possibly, as with starlings, there is a greater nest mortality of females. On the other hand, it may be correlated with the undoubted difficulty many females experience in egg laying. Some birds fail to recover, producing a deficiency of females in the total gull population.

(*b*) Lack (1943), in a study of the results of the British Trust for Ornithology Bird Ringing Scheme for the black-headed gull in relation to the age of the bird, reported an almost equal ratio of juveniles to adults among dead birds compared with a 4 : 1 juvenile to adult ratio for shot birds, and consequently proposed that the juveniles, being less experienced, were shot more easily. In the present investigation exactly the opposite result was obtained: a 1 : 4 juvenile to adult ratio. Possibly the proportion of juveniles to adults in the population varies in different areas, especially as 22 juveniles and 38 adults were obtained inland, and 5 juveniles to 54 adults on the coast (Morcambe Bay). There is bound to be a high proportion of juveniles in the breeding colony areas and this proportion rather than inexperience of the juveniles is more likely to account for the result.

(*c*) Several authors have reported that many black-headed gulls experience difficulty with egg laying. Cohen (1957) found two gulls on the Hampshire coast in an exhausted condition, one making feeble movements and the other apparently dead. After being kept for two days in a cage, during which time one laid a shell-less egg, they recovered completely.

Manley (1957) found gulls on three occasions at the Ravenglass colony, which were unable to fly and offered little resistance on being picked up. Each laid an irregular egg some hours after being placed in a covered basket, followed by a complete recovery. Others on the colony sites were able only to flutter when approached and may have been in a similar condition. One of the captured birds was colour-ringed and appeared completely normal when observed a month later.

Macpherson (1892) asserted that a practised eye could often distinguish a female which was about to lay from the other sex, even on the wing, suggesting that the impending operation may distort the body. This was more marked in this species than in others, although its severity varies considerably. Both Manley (1957) and Spencer (1957) have found dead gulls with eggs in the cloaca.

An examination of nine female gulls found dead on the colony site at Ravenglass during late April and early May, 1957, showed that all contained at least one large egg, three with a fully-formed egg in the cloaca ready for laying, and each of the remaining with several large shell-less eggs in the oviduct. There were no other apparent reasons to account for death.

(*d*) Bullough (1942) compared the testes of starlings taken at different times of the year by measuring their volumes. Calipers were used to take the measurements, and the volume of each testis was calculated according to the formula $V = \frac{4}{3}\pi ab^2$, where V = the volume, a = half the length and b = half the breadth. The volumes of the two testes were added together.

An adult male starling shot at Bingley, Yorkshire, on October 22nd, 1957,

proved to be a most unusual case for in contrast to all other male autumn starlings it had large testes and considerable yellowing on the beak. The testis volume was 655·2 cu. mm., compared with the mean volume of 11·6 cu. mm. for birds in October, and 16·4 cu. mm. in November (Bullough, 1942). Indeed it is more comparable with those given by Bullough for February, 62·0 cu. mm., and March, 1670·1 cu. mm., for male British starlings. The beak coloration differed from the typical male in October and resembled the condition found in British males in December with a half-yellow beak.

Acknowledgments

I am indebted to J. L. Hirst of Morecambe for his very great help in obtaining the gulls from Lancashire, and to the 1957 Oxford Behaviour Study Group (Dr. N. Tinbergen, F.R.S., G. H. Manley, and C. Beer) for supplying corpses from Ravenglass, and to Dr. R. Wynne Owen and Professor E. A. Spaul for much assistance.

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FIELD NOTES

Northern Tree-Creeper in Yorkshire.—From its pale upper-parts and white under-parts I judged a Tree-Creeper caught at Spurn on October 6th, 1959, to be of the typical northern race (*Certhia familiaris familiaris* L.). Unfortunately the bird suffered an accident, but this enabled me to send the specimen to Mr. Alfred Hazelwood, who confirmed my diagnosis, and brought the skin to the Y.N.U. Ornithological Section meeting at Leeds on October 10th, together with a skin of the British race for comparison. The 1952 B.O.U. list gives two occurrences of the typical race for England and five for Scotland. The species has been recorded at Spurn three times previously, two of which records were not critically examined. One caught by G. H. Ainsworth and myself on July 10th, 1950, had pale upper-parts but was grey (not white) below, which may have been caused by contact with carbon on Yorkshire bushes or trees.—Ralph Chislett.

Bearded Tits in Yorkshire.—Discussing the Yorkshire records of Bearded Tits (*Panurus biarmicus*) in *Yorkshire Birds* (1952), Chislett recounts the story of the liberation of six pairs and two odd cock birds at Hornsea Mere in 1911; of their successful breeding over a period of two or three years, and their total disappearance by 1916. The only subsequent record (of three birds at Ingleby Bank on December 6th and 7th, 1948) was not confirmed. Nelson, in *Birds of Yorkshire* (1906), had listed only four earlier reports for the county and there was a measure of doubt about at least two of these.

An item in the Spurn Bird Observatory log-book for October 17th, 1959, reads: ' The highlight of the day was undoubtedly the occurrence of Bearded Tits in the area of *Phragmites* at the Warren.'

At about 08.00 hrs., D. A. Rushforth and the writer saw six birds flying in from the north at about 100 ft. The general shape of the birds in flight had suggested Long-tailed Tits (*Aegithalos caudatus*), but their ' tick-tick ' chattering note, somewhat reminiscent of the flight-note of Tree Sparrows (*Passer montanus*) together with the fact that they plunged into a bed of *Phragmites* convinced the observers that these were in fact Bearded Tits. Their identity was soon established when birds were heard giving the typical ' ping-ping ' call from the reed-bed, and several birds gave brief views as they came to the tops of the reeds.

The other watchers at the Observatory were informed of the presence of the birds and for the next hour, one or two birds were occasionally seen, although for the most part they remained quiet and hidden. It would have been easily possible to pass the reed-bed without ever suspecting the presence of Bearded Tits. At 09.00 hrs., a ' drive ' through the reed-bed revealed that there were in fact eleven birds. Three at least were adult cock birds. During the afternoon, six were netted, ringed and released.

At first, when the birds were flushed several times, they towered, collected into a compact group at about 100 ft., and almost ' hovered ' over the reeds, chattering excitedly. Later in the day, they flitted only just above the tops of the reeds when disturbed, and quickly dived for cover again. At least seven birds were seen on October 18th and 19th, but no effort was made to comb the reeds to ascertain the exact number present. Again the habit of the birds was most noticeable in the early mornings, of rising as much as 100 ft. into the air, calling excitedly as if to leave, but each time returning to the reeds. This behaviour was particularly marked when flocks of migrating birds, especially Tree Sparrows, were passing over the reed-bed. The *Phragmites* is in an isolated bed of about three-quarters of an acre.

On October 20th, the same two observers (D.A.R. and R.F.D.) were undertaking the early-morning migration watch at the ' Narrow Neck ' when at least three Bearded Tits were seen passing southwards in mixed flocks of other species. It was decided, therefore, to comb the area thoroughly to find out if any birds remained. There were in fact none; and the species was not present again, on any of the succeeding five days.

The East Anglian Bearded Tits are generally regarded as sedentary birds, but immigration (of probably Dutch birds) does sometimes occur on the east and south-east coasts of Britain.

The birds at Spurn were seen by a large number of observers, including J. H. I. and Mrs. Leach, J. Cudworth, G. H. Ainsworth, H. O. Bunce, A. F. G. Walker and E. S. Skinner.—R. F. Dickens.

Burnet Moths taken by a Song Thrush.—On a visit to Spurn Peninsula in May, 1959, I collected and brought home some pupae of a Burnet moth. They hatched into Six Spot Burnets, *Zygaena filipendulae* (L.), between June 14th and 18th. This is the commonest Burnet moth, being black and red in colour. As I had no further use for them I put the moths in the garden. They were inactive and stayed around the plant on which I had placed them.

A day or two later I looked out of the window and saw a Song Thrush holding one of the moths in its bill. It was shaking and beating it on the ground in the same way as it would have dealt with a snail. After much shaking and beating the thrush ate the fat body of the moth but left the wings. It appeared to enjoy it and repeated the performance with a second moth.

As I had read that red and black colouration in moths offered protection against enemies, in that they denoted an unpleasant taste, I was surprised to witness this little incident.—Joyce Payne.

MORTALITY OF WILD BIRDS ON ROADS

J. R. GOVETT

An observant motorist will notice on the roads the enormous number of dead hedgehogs and other wild animals which have been run over by vehicles. Most of the birds which are killed by motor traffic are less noticeable than these animals. Often they are knocked to one side of the road and are unnoticed as they lie in the gutter. If this does not happen it is only a short time before they become flattened, unrecognisable patches on the ground. A very large number of birds must meet their end in this fashion.

One day ten years ago I was walking home along the Wetherby road when a car came down Wellington Hill very fast and hit a small bird as it was flying across the road. It collided with the windscreen of the car and dropped dead at the side of the road almost where I was standing. It was an adult dunnock. From that moment I started to keep notes of every bird which I found or saw killed in this way. I have been collecting such records now for ten years and have been constantly watchful whilst going about on foot, on bicycle and more recently by motor-cycle. It has been quite surprising to me how many individuals of a wide range of species have been involved. What has been done was the noting of species, place and date, together with any interesting additional data of every bird which I have found that I was confident was killed by vehicles.

I commenced my recording in May, 1949, and have maintained it continually since. In that time I have recorded 48 species totalling 585 individuals.

List of Species Found Dead or Seen Killed on Roads (mostly in Yorkshire) May 1949—May 1959.

Species	Numbers Adult	Juv.	Pull.	Total	Species	Numbers Adult	Juv.	Pull.	Total
Mallard	1♀	–	–	1	Blackbird	22♂ 24♀	18	–	64
Red Grouse	1♂	–	–	1	Redstart	1♀	1	–	2
Partridge	2	1	–	3	Robin	29	7	–	36
Pheasant	1♂ 2♀	–	–	3	Whitethroat	9	1	–	10
Moorhen	2	–	–	2	Willow-Warbler	6	1	–	7
Lapwing	1	–	3	4	Spotted Flycatcher	2	–	–	2
Herring-Gull	1	1	–	2	Dunnock	10	8	–	18
Black-headed Gull	1	–	–	1	Meadow-Pipit	15	6	–	21
Wood-Pigeon	30	8	–	38	Pied Wagtail	3♀	3	–	6
Little Owl	1	–	–	1	White Wagtail	1	–	–	1
Tawny Owl	2	–	–	2	Grey Wagtail	1♂	1	–	2
Skylark	8	6	–	14	Yellow Wagtail	2♂ 2♀	2	–	6
Swallow	1	1	–	2	Starling	28	14	–	42
Sand-Martin	–	1	–	1	Hawfinch	–	1	–	1
Carrion-Crow	8	7	–	15	Greenfinch	7♂ 12♀	12	–	31
Rook	19	7	–	26	Linnet	8♂ 6♀	6	–	20
Jackdaw	6	6	–	12	Bullfinch	1♀	–	–	1
Magpie	6	2	–	8	Chaffinch	8♂ 7♀	9	–	24
Jay	2	–	–	2	Yellow Bunting	5♂ 6♀	5	–	16
Great-Tit	6	2	–	8	Corn-Bunting	1	–	–	1
Blue-Tit	7	5	–	12	House-Sparrow	14♂ 17♀	18	–	49
Long-tailed Tit	1	–	–	1	Tree-Sparrow	2	–	–	2
Mistle-Thrush	8	2	–	10					
Fieldfare	2	–	–	2					
Song-Thrush	39	11	–	50	Totals	409	173	3	585
Redwing	2	–	–	2					

The list above gives at least some indication of the quite significant numbers of birds which must be killed yearly on the roads and go unrecorded. It was only by examining every dead bird or possibility that I encountered during my travels over ten years that I have been able to amass 585 cases. In some instances identification was only just possible as the birds were sometimes squashed to a mere patch of feathers.

As would be expected, the numbers quoted above to a certain extent reflect the relative abundance of the various species rather than their vulnerability to road accidents but the high proportions of Song-Thrush, Blackbird and Robin are

probably indicative of the vulnerability of these species. They are relatively slow fliers and from my records a large proportion are either adults feeding young in nests in hedgerows near roads or young birds at the fledgling stage. I myself unavoidably collided with a Song-Thrush as it flew out from the side of the road, whilst I was on my motor-cycle. I was only travelling at 20 m.p.h. and it hit my leg. On examining the bird it was found to have a broken neck, a broken wing and a broken leg.

The adult Mallard is rather surprising perhaps but the circumstances seemed to make it likely that she had been caught unexpectedly whilst leading her ducklings across the road to nearby water.

The Red Grouse was not a shot bird; it was found, with wing and flanks damaged, at the side of a moorland road in June. In the case of one of the female Pheasants it seemed that it had most likely been run down whilst feeding on the road for near the corpse was some spilt grain. The large number of Wood-Pigeons is rather unexpected and perhaps they were run down by fast cars whilst feeding or getting grit from the road. How the Owls were killed is uncertain, but one of the Tawny Owls by its injuries seemed to have been hit in flight. The Little Owl was a flattened mass in the middle of a main road (Ring Road, Shadwell). Birds of the crow family are certainly caught by fast cars whilst they are feeding on the carcase of a rabbit or the viscera of hedgehog or such like, these animals having been killed by a vehicle in the first place.

Most of the small birds are, it would appear from observation, killed by colliding with vehicles during flight across the road from one side to the other. I have seen this happen on several occasions especially on main roads where traffic is fast-moving. Sometimes birds like Greenfinches are caught unawares as a vehicle comes round a corner of a lane when they have been feeding at the verge or under a hedgerow. I have witnessed three instances of this happening.

It seems from the data available that adult birds and juveniles are equally vulnerable.

My records cover all months of the year, but there is a slight bias towards the months of June and July.

More observations are needed to give a clearer picture of this factor in bird mortality. With the increase in the number of vehicles using our roads each year, collison with vehicles may well become an increasing cause of death in our bird population particularly amongst the hedgerow-nesting species.

Field Studies is the title of a new journal to be published annually by the Field Studies Council. Its aim is to provide a medium for the publication of scientific work based on investigations carried out at the Council's six Field Centres.

Eight papers are included in the first issue. These cover five of the Centres and are well balanced with regard to the range of studies fostered by the Council. Three of the papers deal with studies conducted at the Dale Fort Centre. The Warden, Mr. J. H. Barrett, gives an annotated list of the 219 species of birds observed at Dale and Skokholm and B. J. Dresser and J. Oliver contribute papers on the land utilisation and climate of the Dale Peninsula. Geology and geography are covered by papers on ' The Geomorphology of the Tillingbourne ' and ' The Geography of the Alberbury Breccia ' by V. J. Mercer and J. D. Mercer respectively; and J. E. Morton and J. Machin's well illustrated ' Key to the Land Snails of the Flatford Area ' will be of value to students at all centres. Dr. and Mrs. Piggott's account of the history of vegetation at Malham Tarn and Tarn Moss, based on stratigraphy and pollen analysis is of special interest to Yorkshire botanists, and Miss H. M. Twigg's ' Freshwater Studies in the Shropshire Union Canal ' is an admirable account of the plant and animal communities of a very rewarding area.

Professor A. R. Clapham is chairman of the editorial board which includes the Wardens of the Dale Fort and Flatford Mill Centres and three other members. The journal is well produced with numerous plates, maps and drawings and is excellent value for its low price of five shillings. Each successive part should see the building up of a series of detailed local surveys which will be of great value to visiting students both as a source of organised information about the Centre visited and as a guide and incentive to the making of parallel surveys in their own districts. Copies, price five shillings and sixpence (to include postage), are obtainable from The Publicity Secretary, F.S.C., Ravensmead, Keston, Kent.

JOINT MEETINGS OF THE VERTEBRATE SECTIONS, 1959

At the meeting held at Leeds University on March 21st, some 120 members and associates heard the Annual Report of the Spurn Bird Observatory Committee given by the Secretary, Mr. George Ainsworth. This was followed by the Ornithological Report for 1958 which was presented by its editor, Mr. Ralph Chislett.

The evening session was devoted to a ' Portrait of an Island,' being a description of the island and birds of Foula. Mr. R. F. Dickens illustrated his talk with a series excellent slides, and sound effects were given by recordings provided and played by Mr. Roy Scholes. A further selection of slides was shown by the Chairman and Mr. Tim King.

About 100 members and associates attended the meeting held on October 10th, at which the Annual Report of the Mammals Section was given by Mrs. E. Hazelwood. This section is anxious to obtain information on the distribution of the Rabbit and to hear of any fresh outbreaks of disease. Mr. Henry Bunce, of Hull, also asked for the return of ornithological survey forms which have been circulated to members of the relative section. Mr. Ainsworth dealt with the interim report from Spurn, and Mr. Chislett summarised the ornithological year so far.

During the evening Mr. Harold Hems, of Sheffield, showed a series of interesting slides entitled ' Nocturnal Predators,' at the same time discussing his experiences in photographing Owls, Badger and Fox. A colour film, 'Some Northern Birds,' was displayed by Mr. Vernon Crapnell, of Halifax. This illustrated the birds which nest on the Pennine moorlands.

The Chairman of both these meetings of the Joint Vertebrate Sections was Mr. Athol Wallis, of Scarborough. Mr. John Cudworth, of Ossett, has been elected Chairman for 1960.

A. H. B. Lee, *Hon. Convener.*

ORNITHOLOGICAL SECTION MEETINGS

In addition to their joint Vertebrate Section meetings, the Ornithological Section have held two other meetings during 1959.

On Thursday, September 24th, at a Public Meeting in the Great Hall of Leeds University, some 450 people saw the R.S.P.B. colour film ' Highland Birds,' in which such species as Golden Eagle, Black-throated Diver, Crested Tit, Ptarmigan, etc., were shown.

At a meeting in Huddersfield on Saturday, November 14th, following a series of papers, colour slides of Spurn Bird Observatory were shown. At the afternoon session, A. H. B. Lee, of Leeds, spoke about ' Wader Passage in the West Riding '; R. Crossley of Huddersfield on ' Duck Counting in the Huddersfield Area '; and R. V. Jackson of Leeds on ' Rook/Jackdaw Roosts and Flight-lines.'

Mr. T. D. Bisiker of Huddersfield presided over the evening meeting, when J. Mather, of Knaresborough, spoke about his experiences during ' Five Years of Sand-Martin Ringing,' and John Cudworth, of Ossett, contributed a paper on ' Some Aspects of Spurn Winter Flocks of Snow Buntings.' The colour slides of the Observatory work were presented by R. F. Dickens, of Leeds, and E. S. Skinner, of Burley-in-Wharfedale.

The Buzzard, by **Frank Wenzel,** translated from the Danish by Reginald Spink. Pp. 36 including 41 photographs (10 in colour). George Allen and Unwin. 35/- net.

This young Dane watched Buzzards from a hide when fourteen, and in seven years since has examined well over 100 nests. He attempts no monograph of the species, but gives a lucid, first-hand account of habits in its tree-nesting haunts in Denmark. The Buzzards 'from northern Scandinavia' that supplement those remaining in winter may be Rough-legged Buzzards, but *Buteo lagopus* is not mentioned. No evidence is presented for the statement that Buzzards pair for life. Many of the photographs are of high quality; others are not; and some may be considered over-enlarged—hatching eggs are shown at more than life size, and head and torso portraits fill whole pages. The reproductions are all good. Mr. Wenzel is fortunate to have his early work presented so sumptuously, in large type, with more than ample margins. It is an attractive book, but expensive for its content.

R.C.

CORRESPONDENCE

The Editor, *The Naturalist.*
Dear Sir,

The paper, 'An Account of the Warblers (*Phylloscopus* and *Sylvia*) passing through Knaresborough Sewage Farm during June to September, 1958, based mainly on Trapping Figures ' (p. 93), by J. R. Mather, and the subsequent comments by R. Chislett, prompts me to place on record some observations made at the High Royd Ringing Station at Halifax.

For several years after 1947 a permanent Heligoland type trap was used by members of the Halifax Scientific Society at High Royd Sewage Farm, near Luddendenfoot. The trap was situated near the River Calder and had a line of bushes (mainly *Salix* sp.) leading in to it. In more recent years balsam (*Impatiens glandulifera*) has also grown in profusion near by, and during the evenings of late summer this plant has often harboured warblers which could be driven into the trap.

The figures below give the total numbers of Willow Warblers (*Phylloscopus trochilus*) caught in each respective year for which records are readily available:

1952	1953	1954	1955	1956
39	196	31	97	79

Taking the 1953 figure first: for the period July 13th to August 20th a total of 185 birds were caught (138 were caught before the end of July alone).

For the same period of 1954, only 24 Willow Warblers were caught. In 1955, 83 were caught between July 17th and August 25th, and in 1956, 66 between July 4th and August 25th.

In each of these years the trap was worked quite regularly during the period under review, mainly in the evenings. Indeed, in 1954, spurred on by the success of the previous year, the trap was worked equally thoroughly, with a most disappointing result.

It would appear, therefore, that for reasons which may be as yet unknown, there are some years when warblers turn up in quite exceptional numbers in certain inland localities; for the number of birds which are trapped may be only a small proportion of those which pass through an area.

An interesting clue as to the journeyings of these birds came, in 1953, from a Willow Warbler which was re-trapped at Scissett, between Barnsley and Huddersfield, on August 18th, four days after it had been ringed at High Royd. This is a distance of approximately 15 miles in a south-easterly direction, but the bird may well have travelled many more miles than that, following the course of the Calder for a large part of the way.

Yours faithfully,
ROY CROSSLEY.

Bird Watching for Beginners, by **Bruce Campbell.** Pp. 240, with maps and drawings. Penguin Books, London, 1959. 2/6.

This seven-year-old introduction to bird-study (for it embraces far more than mere bird *watching*) is one which one has always been happy to commend to novices in a pastime which can so readily be developed into a science.

The author has done a considerable amount of research on his own account and is all the more fitted to interpret the work of others. His style is simple and friendly, without condescension, and although the book is intended primarily for children, almost every field ornithologist would do well to read it from time to time for a reorientation of purpose and method. It is amazingly comprehensive and this edition has been brought completely up-to-date in the text and in the bibliography.

Perhaps the most useful feature of the book is the stress laid all along on the many gaps in our knowledge, especially with regard to the life histories of many common species, and nowhere does he give any encouragement to the tally hunter or to the rarity cult which has recently done much to obscure the prime science of ornithology which is the study of birds in their normal habitat.

In this cheap edition it should achieve a wide distribution in which it will do nothing but good. I would only commend the author to delete ' for beginners ' from his title.

A.H.

THE YORKSHIRE NATURALISTS' UNION: NINETY-EIGHTH ANNUAL REPORT

The Ninety-seventh Annual Meeting was held on December 6th, 1958, at the Cartwright Memorial Hall, Lister Park, Bradford, by invitation of the Bradford Naturalists' Society and by kind permission of the Art Gallery and Museums Committee of the Bradford Corporation.

The Presidential Address entitled 'The Museum and the Naturalist' was delivered by Mr. Alfred Hazelwood, and was subsequently published in *The Naturalist*, 77-80, 1959.

The Presidency for 1960 has been offered to and accepted by D. H. Valentine, M.A., Ph.D., F.L.S., Professor of Botany in the University of Durham.

The Excursions in 1960 will be to:

V.C. 61. Driffield (Whitsun), June 4th-6th.
V.C. 62. Castleton for Baysdale, Sunday, June 19th.
V.C. 63. Gargrave, July 2nd-3rd.
V.C. 64. Fairburn, August 13th.
V.C. 65. Langton-on-Swale, July 16th.

Membership.

At the time of writing, membership of the Union comprises 1 Honorary Life Member, 16 Life Members, 417 Ordinary Members, 34 Family Members, 8 Junior Members and 40 Affiliated Societies.

New Members.

Adams, D. H., 33 Heworth Hall Drive, York.
Allison, L., 24 Sunset Avenue, Leeds 6.
Aubrook, E. W., F.M.A., F.R.E.S., Tolson Memorial Museum, Huddersfield.
Bass, K., 38 Lulworth Crescent, Leeds 15.
Beaumont, G., Sinderby, Thirsk.
Branscombe, Lt.-Col. J. S. G., The Cottage, Wansford, Driffield.
Brooke, A., 41 Scholey Road, Rastrick, Brighouse.
Brooks, J. L., 48 Linden Avenue, Sheffield 8.
Brown, Sir Charles Richmond, Bart., Stonely Woods, Fadmoor, York.
Butterworth, P. G., 68 Asket Drive, Seacroft, Leeds 14.
Clarke, Miss Evelyn M., 16 Moorland Road, Leeds 6.
Collinge, Mrs. Vera (F), 37 Warley Road, Halifax.
Dealtry, J. T., 1 Vicar Lane, Howden, Goole.
Dearing, Miss Barbara, 37 Ormerod Road, Burnley, Lancs.
Dickinson, H., University College, Singleton Park, Swansea.
Draper, Mrs. F. C., Chevin View, Burley Woodhead, Burley-in-Wharfedale, Leeds.
Elenor, H. B., B.Sc., F.G.S., 14 Longden Avenue, Lepton, near Huddersfield.
Elenor, Mrs. B. W. (F).
Ellis, E. W., Gedham, Ossett, Yorks.
England, Miss M., 30 Manor Croft, Baildon, Shipley.
Goodings, E. P., 10 Firs Drive, Harrogate.
Green, Miss Eileen M., 8 Ribble Terrace, Settle, Yorks.
Hemingway, H., 12 Anroyd Street, Dewsbury.
Hirst, C. W. F., Fairfield Cottage (No. 4), Shipton Road, York.
Hirst, Mrs. C. W. F. (F).
Hobson, G. R., 5 Westfield Villas, Yeadon, Leeds.
Hodgson, Miss Joyce, B.Sc., Cleveland Grammar School, Redcar, Yorks.
Jackson, S. M., 15 Westbourne Road, Selby.
Leach, J. H. I., 6 Oakdale Drive, Wrose, Shipley.
Leach, Mrs. J. H. I. (F).
Lee, J. D., 'Saffrondale', Main Street, Skidby, E. Yorks.
Leedal, J. C., 16 Avondale Road, Shipley.
Leeson, J. C. H., B.A., 10 Belvedere Drive, Bilton, Hull.
Millin, Dr. D. J., 39 Hawthorne Avenue, Willerby, E. Yorks.

Milne, C. W., 110 Thoresby Road, Acomb, York.
Nelson, J. D. E., B.Sc., Lime Cottage, High Green, Romaldkirk, Barnard Castle, Co. Durham.
North, Miss F. M., 438 Meanwood Road, Leeds 7.
Peart, F. A., 92 Woodhouse Road, Doncaster.
Pease, Miss Margaret A., Orchard Villa, Selby Road, Whitkirk, Leeds 15.
Pugh, P., 199 Kentmere Avenue, Leeds 14.
Ratcliff, E. W., 408 Otley Road, Adel, Leeds 16.
Rhodes, R. J., 11 Langdale Drive, Scawthorpe, near Doncaster.
Sanderson, Miss M. R., 20 Stray Walk, Harrogate.
Scaling, T. N., 17 West Auckland Road, Darlington.
Scholes, W. R., 7 Spennithorne Avenue, Leeds 16.
Scott, H. E., 47 North Street, Hyde Park, Doncaster.
Seaward, D. R., 4 Beverley Road, Redcar.
Seaward, Mrs. M. (F).
Sterne, Mrs. E. C. (F), 43 Roper Avenue, Leeds 8.
Todd, Mrs. Doris M., M.B., B.S., Ullingswick, Northallerton.
Voysey, J. C., 5 St. John's Square, Wakefield.
Wilson, H. H., Drumahoe House, Larne, Co. Antrim.

Junior Members.

Menkel, Ruthild, 9 Northfield Avenue, Settle.
Miles, John, 32 Green View, Shafton, Barnsley.
Pautard, Ruth, 51 Easterly Avenue, Leeds 8.
Simms, Colin, 30 Livingstone Road, North Ormesby, Middlesbrough.
Smith, Graham, 49 Easterly Avenue, Leeds 8.
Smith, Mark, 49 Easterly Avenue, Leeds 8.
Stephenson, Barrie, East End Farm, Patrington, E. Yorks.
Williams, Judith Ann, Sandhill Post Office, Kilnhurst Road, Rawmarsh, near Rotherham.

Deaths.

It is with regret that we record the death of the following members:

Allison, L.
Beldon, Mrs. A. C.
Foster, H.
Hilary, Miss D.
Percival, Prof. E.
Sykes, A. W.
Thompson, A.

Resignations.

Burton, C. E.
Clarke, Miss E.
Greaves, W.
Greenwood, Miss S. E.
Norris, Dr. and Mrs. J. R.
North, Miss F. M.
Potter, R. M. C.
Radford, Miss A.
Reynolds, C.

Change of Address.

Alderson, G. E., Greenways, The Shawl, Leyburn.
Allison, Miss A. E., 26 Romanby Road, Northallerton.
Allison, Mrs. M. (formerly Mrs. Summerfield), Flat 16, Cecil Court, Valley Drive, Harrogate.
Appleyard, Mrs. J., Aldhelmsted West, Sherborne, Dorset.
Bennett, W., Oakdene, 10 The Lane, Alwoodley, Leeds 17.
Branson, F. E., 72 Chain Lane, Knaresborough.
Caulton, D. E., B.Sc., F.L.S., Chevindale, 474 Duffield Road, Allestree, Derby.
Evans, M. C. W., 47 Pereira Road, Harborne, Birmingham 17.
Garnett, R. M., 150, 55th Avenue, Lachine, Quebec Province, Canada.
Good, Prof. R. D'O., 73 Orchard Avenue, Parkstone, Poole, Dorset.
Hillas, D. K. N., ' The Croft ', Swanland, North Ferriby, E. Yorks.
Kilby, Misses R. and M. B., Elmhurst, Linton Avenue, Boston Spa.
Kloet, G. S., 4 Devonshire Park Road, Davenport, Stockport, Cheshire.
Nicholas, W. W., Westgate House, West Gate, Pickering.

Powell, Mrs. S. (formerly Miss Blakey), Springfield Mount, Addingham, near Ilkley.
Sanderson, Miss M. R., 15 St. Winifred's Road, Harrogate.
Shaw, Miss Marjorie S., 64 Lawson Road, Sheffield 10.
Shaw, S., F.R.E.S., 71 Handsworth Crescent, Lower Eastem Green, Coventry.
Sheard, G. F., 4 Torton Hill Road, Arundel, Sussex.
Sterne, E. C., M.A., 43 Roper Avenue, Leeds 8.
Summerson, P., Pound House, Cotherstone, Barnard Castle, Co. Durham.
Tetley, Miss M. I., High Gable, Fell Road, Grange-over-Sands, Lancs.
Trimingham, J. S., 16 Ravensworth Road, Doncaster.
Wallis, Overton H., 46 Chestnut Avenue, Heworth, York.
Wray, Miss Mollie, 8 St. Clement's Road, Harrogate.

Change of Secretary.

Bradford Microscopical Society, F. Waring, Esq., 45 Henconner Lane, Leeds 13.
Castleford & District Naturalists' Society, Mrs. C. Pyrah, Glendale, 3 Sheepwalk Lane, Townville, Castleford.
Keighley Natural History & Literary Society, Miss E. Anderson, 490 Skipton Road, Utley, Keighley.

MAMMALS, REPTILES, AMPHIBIANS AND FISHES

Mammals: *Cheiroptera:* The only bat reports this year relate to Pipistrelles seen flying in bright sunshine in the mid-morning on May 24th and September 29th at Knaresborough.

Insectivora: Reports would indicate that Hedgehogs remain plentiful throughout the county. Two were seen by Mr. Beck on June 21st, in the light of a mercury vapour moth trap at 11-45 p.m., in his garden; they were pushing each other about, presumably wanting to pair.

A pair of dead moles were found lying on their backs quite close to one another in a field near Cawthorne without any apparent signs of injury on September 19th. An all-white mole was caught by Mr. A. Oliver at Darley, Harrogate.

Lagomorpha: A new outbreak of myxomatosis was noticed in July at Cridling Stubbs, near Pontefract, where several dead rabbits were seen. At Farnley Park, near Otley, on October 21st, 1958, one dead rabbit with symptoms of advanced myxomatosis was seen and one living one wandering half-blind and obviously suffering acutely from the disease; two other rabbits seen on the same day seemed perfectly healthy. In October, 1958, a very sudden outbreak appeared near York, so sudden as to give reasons for suspicion as to its origin having probably been illegal.

Near Halifax the rabbit is still fairly common and one was seen in the Hardcastle Crags area where myxomatosis was prevalent two years ago. They are widespread around Knaresborough.

Brown Hares maintain their widespread distribution in the county although around Knaresborough they have not been seen in the numbers in which they were seen a year ago. At Finningley the hares have been seen sunning themselves in small excavations facing south.

Rodentia: On May 26th a Long-tailed Field Mouse was found dead in a beehive near Knaresborough; it is suggested that the only way of access was by having been introduced when super and combs were put on the hive.

Red Squirrels are reported from Grassington; Burton Constable and Rise, near Hull; Halifax; Gunthwaite and Cawthorne; Silkstone Fall Wood, Barnsley, and at Thurgoland, near Sheffield. On September 19th a chocolate brown specimen was seen eating acorns near Cawthorne.

Grey Squirrels are reported from the side of the main Sheffield road at Deepcar; also from Knaresborough (plentiful) and from the neighbourhood of Hull University Library Building, woods at Hessle, Bishop Burton and Londesborough, near Market Weighton.

Mr. Utley reports that on October 9th when he approached a wood on a steep slope near Kirkby Fleetham Church he disturbed two squirrels feeding on the ground. One was a Red and the other a Grey. When they saw him both went swiftly up the

same tree trunk; the Grey one was lost in the foliage but the Red one was kept under observation for some time.

Ungulata: On January 8th, in snow, four does and one stag Fallow Deer were seen in Deffer Wood, Cawthorne, relics of the herd of tame deer which lived in Cannon Hall Park before the war.

Carnivora: Despite the decrease in the number of rabbits, Stoats and Weasels continue to hold their own judging by the reports of them. This may have something to do with the illegality of the gin trap. A fisherman near Hull spoke of having seen a Stoat hunting a rat along the pond bank, eventually driving it into the water; it followed the rat along the bank foiling all attempts of the rat to regain dry land, but it eventually gave up. Mr. Greenwood of Sutton-in-Craven records the following: Between 5 and 6 p.m. on May 9th near Gargrave he saw a Stoat carrying something which it took to an old tree in the middle of a large pasture. It returned almost at once without the object to a small beck about 100 yards away. It swam across the beck to the other bank and was lost in some long grass and undergrowth. A minute or two later it reappeared with an object and through binoculars Mr. Greenwood could see it was a small animal which he presumed to be a young Stoat only a few days old. The old Stoat swam across the beck carrying the young Stoat by the scruff of the neck and took it to the same tree where it climbed some 4 feet to a hole in which it deposited its burden. Three times this was repeated. The Stoat made a fourth journey but returned to the tree alone.

Badgers remain in their previously reported localities and the increased number of Foxes continue to thrive throughout the county despite organised shoots.

Mr. T. H. Wild came across a young Badger killed on the main Leeds-York (A64) road one mile west of Stutton, near Tadcaster, on June 15th.

There are no Otter records this year.

Cetacea: A Porpoise is reported from Goole.

Mr. Morley notes that while photographing a kestrel's nest containing three young, four Short-tailed Field Voles, one Long-tailed Field Mouse, half a grown Rat and three birds were brought to the nest.

Reptilia: An Adder measuring 23½ in. was found dead at Masham on May 22nd; it was green with black markings, and there was no trace of food in its stomach. The species is also recorded from Strensall and Allerthorpe Commons near York.

On May 10th Mr. Barham caught a Common Lizard at Castleton. On July 6th, whilst he was away on holiday, his father noticed an extra Lizard; on returning Mr. Barham found that five had been born but unfortunately one had drowned accidentally in the drinking dish. The remaining youngsters did well until about August 24th when two more died. At that time they were moulting for the first time and had grown from 1¾ in. at birth to 2⅛ in. One that had died seemed to have been unable to rid itself of its slough. They were fed on spiders, small caterpillars and diptera, etc. One of the remaining youngsters has outstripped the other and is 2¾ in., the other 2⅜ in. These are roughly the measurements given in Malcolm Smith's book (70 and 60 mm.) for young beginning hibernation.

Amphibia: Frog spawn appeared plentiful in mid-March and Toad spawn a month later.

Pisces: A Pike weighing 22½ lb. was landed at Hornsea Mere on January 2nd by a 16-year-old angler apparently using home-made fishing tackle. Forty-two dead Pike varying from 1-3 ft. were stranded at Blaxton due to drought.

On May 10th Mr. Barham reported seeing Brook Lamprey (*L. planeri*) in the Esk at Castleton. They appeared to be spawning similarly to the River Lamprey. They were in two rather closely packed parties, one of four or five, and the other of about ten, constantly on the move but keeping to one small stretch of the river bed.

I am indebted to Messrs. M. D. Barham, R. F. Dickens, P. Baldwin, and J. R. Govett (all of Leeds), B. Pashby and G. K. Scarr (of Hull), R. A. Atkinson (Barnsley Naturalist and Scientific Society), I. Morley (Halifax), B. Dale (York), W. Beck (Knaresborough), K. Hardcastle (Bradford), E. Greenwood (Crosshills Naturalist Society), A. E. Platt (Doncaster), and J. P. Utley (Northallerton), who, by forwarding their observations and records, have made possible this report.

ORNITHOLOGY

Interim Report (Ralph Chislett): The full report for 1958 was published in the April *Naturalist* and reprinted in May. Our ordinary meetings in March and October and the display of the film ' Highland Birds ' by the R.S.P.B., were well attended. The Section was represented at all the Union's Field Meetings, with reports sent in subsequently to *The Naturalist*. The meeting of the Section on November 14th in the Huddersfield Museum by invitation of Mr. E. W. Aubrook, with an attractive programme of papers by members, is an extension of our activities.

The year has been the driest and sunniest recorded. Birds had a good breeding season, with probably more second and even third broods than usual. Large coveys of Partridges were seen quite early in the summer. Some Lapwings remained in their breeding quarters until late summer. A pair of Linnets hatched eggs as late as September 20th in the Yarm area. By early autumn reservoirs were low, many streams had dried out, and inland birds were having to consider water supplies and were most plentiful near to rivers. Abnormal pecking of fruit by birds may have been due to this cause; but the full effects of the abnormally dry year have yet to be studied.

The late-summer influx and passage of passerines to and along the coast was spread over a longer period than in 1958, but such continental species as Wryneck and Bluethroat duly arrived, with more Barred Warblers, and especially more Red-breasted Flycatchers than usual. A Wryneck recovered north of 66 degrees in Sweden on July 2nd, 1959, had been ringed at Spurn in September, 1958, and was very near to the Arctic Circle; it was the second of our Wrynecks to be so recovered in Sweden out of twenty-seven ringed—a remarkably high yield.

The purchase of the Spurn Promontory by the Yorkshire Naturalists' Trust Ltd. has been a very important event. The price has been raised by voluntary subscriptions. Desecration of the peninsula to a ' caravan and shack ' site has been prevented, but not all the difficulties of naturalists working there have been solved. The unavoidable publicity has resulted in a large increase of visitors during fine weekends. Most of the visitors merely came to picnic, and the work of the observatory was hampered. Fortunately, for most people a weekend only lasts two days!

The number of birds ringed at Spurn could not be expected to reach the record figures of 1958, but migration was heavy in early October and by the 20th, 2,000 more had been added to the 2,000 ringed to late September, and last year's total was being approached.

Details of many interesting events in all parts of the county have already reached me for use with the full Annual Report. Others will come before the year end. I am anxious that we shall maintain our reputation both for accuracy and for early appearance.

CONCHOLOGY

(Mrs. E. M. Morehouse): Mr. K. Lloyd's records for 1958 which were not available for inclusion in the report for that year include *Limnaea auricularia* L. and *Vivipara contecta* L. from Farnley Gravel ponds, and *Limnaea truncatula* Müll. and *L. pereger* Müll. from a drainage channel at Eccup Reservoir. In the Wharfe at Harewood Bridge after a heavy storm thousands of dead shells were found, amongst them being specimens of *Limnaea pereger* Müll., *Sphaerium corneum* L., *Paludestrina jenkinsi* Smith, *Ancylus fluviatilis* Müll., *Pisidium nitidum* Jen. and *P. pusillum* Gmel.

The glorious summer of 1959 has brought few records. Mr. Thompson found *Succinea putris* L., *Limnaea truncatula* Müll., *L. palustris* Müll. and some malformed *Arianta arbustorum* L. at Stutton Carr near Tadcaster. The molluscs found at Bishop Wood, Selby, have already been reported in *The Naturalist*.

There have been three indoor meetings of the Yorkshire Conchological Society and six outdoor meetings including the ones of the Y.N.U. On September 12th the Yorkshire Conchological Society visited Skipton (A), Gargrave (B) and Bank Newton (C) under the leadership of Mr. E. Dearing. This excursion yielded the following species: *Ancylus fluviatilis* Müll. (C), *Valvata piscinalis* Müll. (C), *Bithynia tentaculata* L. (A, B, C), *B. leachi* Sheppard (A), *Limnaea truncatula* Müll. (B), *L. palustris* Müll. (A), *L. stagnalis* L. (A, B, C), *L. auricularia* L. (A, B, C), *L. pereger* Müll. (A, B, C), *Planorbis carinatus* Müll. (A, B), *P. vortex* L. (A, B), *Succinea putris* L. (B), *Sphaerium corneum* L. (A, B, C), *Anadonta cygnaea* L. (A, B, C), *Dreissensia polymorpha* Pallas (A, B, C), *Pisidium amnicum* Müll. (A), *Arianta arbustorum* L. (B, C), *Helix nemoralis* L. (C), *Cochlicopa lubrica* Müll. (A), *Agriolimax agrestis* L. (B).

ENTOMOLOGY

Lepidoptera (F. Hewson): The year has been one of abnormal dryness in all parts of the country with record periods of sunshine and drought. Yet there has not been an over-abundance of Lepidoptera in Yorkshire. Migration from the Continent appears to have been less than usual and confined to few species, whilst one can only suppose that the dryness of food plants has been a decided disadvantage to home-bred larvae. On the other hand the long summer helped to produce an extra brood of some species.

Key to Initials.—J. Armitage; E. W. Aubrook; W. Beck; J. Briggs; I. G. Brown; W. E. Collinson; R. Crossley; I. R. Downhill; C. R. Haxby; A. M. R. Heron; J. Hudson; S. M. Jackson; J. Payne; E. Richards; C. I. Rutherford; C. Scott; D. Scott; J. H. Seago; C. C. Smith.

Dira megera L. (Wall). (61) Seen in numbers in the East Riding, May 12th, the earliest I have known. The second brood must have been out in July when I was on holiday, as in late September a third brood appeared in fair numbers, which I have not previously known in the North. Quite common on Cliffe Common, October 10th; S.M.J. (63) Prolific at Wath-on-Dearne, and a partial third brood in September; J.H.S.

Coenonympha tullia Mueller (Large Heath). (62) C.R.H. spent two full days, June 20th-21st, surveying the Goathland colony, which appears to be in a flourishing state. Of a fine form, they average larger than those on the Witherslack Mosses and the undersides are less brown, more greenish in colour.

Aphantopus hyperantus L. (Ringlet). (62) An early emergence just beginning at Pickering, June 21st; C.R.H.

Argynnis aglaja L. (Dark Green Fritillary). (63) The Strines, south of Penistone, seen July 7th and July 14th, one taken July 24th; I.G.B.

Vanessa atalanta L. (Red Admiral). Abundant throughout the county, especially in August and September.

V. cardui L. (Painted Lady). (61) Spurn Point, September 2nd; D.S. Hessle, one August 30th; J.H.S. A few other slight references; apparently a poor year for this species.

Aglais urticae L. (Small Tortoiseshell). More than usually abundant throughout the county, especially in August and September.

Hamearis lucina L. (Duke of Burgundy Fritillary). (62) Pickering, May 18th, males out in large numbers, females just coming out, a full week earlier than usual; C.R.H.

Colias croceus Geoff. in Fourc. (Clouded Yellow). (63) One caught by C. Disbrey at Fartown, Huddersfield, September 20th, was taken to R.C. the same day. One caught by C. White at Wombwell, October 13th, was taken to J.H.

Erynnis tages L. (Dingy Skipper). (62) Abundant at Pickering May 18th, very common in many places during May; C.R.H. Several in Buttercrambe Woods, May 24th; S.M.J. (63) Abundant at Tankersley, May 17th. Few at Wentworth where it was common in 1958; J.H.S.

Augiades venata Br. & Gr. (Large Skipper). (63) At least a dozen at Beldon Valley near Huddersfield, June 20th; not common here; R.C. Very early, first seen at Cawthorne, May 31st, and quite over by mid-June in many South Yorkshire localities; J.H.S.

Nola cucullatella L. (Short-Cloaked). (64) Headingley, Leeds, at light, June 30th, July 3rd; C.C.S.

Apatele alni L. (Alder). (64) Harrogate, M.V.L., June 14th; C.I.R.

Craniophora ligustri Schiff. (Coronet). (64) Harrogate, M.V.L., July 8th; C.I.R.

Laphygma exigua Hueb. (Small Mottled Willow). (63) Previously we had only one reliable record. T. Fieldhouse took eight near Keighley, 22/9/03. Richard South (*Moths*, Vol. 1, page 319) stated that three others were taken in the county but probably had mis-read the note in *The Entomologist* for 1903 (Vol. 36, page 317). In *The Naturalist* for 1903, page 424, G. T. Porritt wrote that prior to Mr. Fieldhouse's captures only three examples appear to have been recorded north of the London district—two in Pembrokeshire and one at Liverpool. In the *Victoria County History*, Vol. 1, page 253, published 1907, Porritt again wrote that the species had not been noticed in Yorkshire either before or since. This year five have been taken at M.V.L. Triangle, Halifax, one on October 11th,

two (including a ♀) on October 31st; W.E.C. Huddersfield, September 7th; E.W.A. (64) Harrogate, October 3rd; C.I.R. This is regarded as a migrant species and others may have been overlooked because of the similarity to *Caradrina clavipalpis* Scop. (Pale Mottled Willow).

Chilodes maritima Tauscher (Silky Wainscot). (61) One at M.V.L., Skipwith Common, June 11th; J.B.

Cosmia affinis L. (Lesser-Spotted Pinion). (64) Several larvae taken in Copgrove Woods, near Knaresborough, May 30th; S.M.J.

Pyrrhia umbra Hufn. (Bordered Sallow). (64) Knaresborough, M.V.L., June 21st, W.B.

Rhizedra lutosa Hueb. (Large Wainscot). (61) Skipwith Common, M.V.L., two ♂♂, October 4th; J.B. (63) One at rest near M.V. trap, Triangle, Halifax, October 2nd; W.E.C. The first I have ever seen in the district came to M.V.L. in my garden at Wath-on-Dearne, September 12th. Since then I discovered it in numbers at Wet Moor. It is easily found at rest on palings and on roads under lamps and in small numbers has been a regular visitor to the trap; J.H.S. (64) Askham Bog, M.V.L., one ♀ October 1st; J.B.

Arenostola elymi Tr. (Lyme Grass). (61) Spurn, M.V.L., July 7th; C.I.R.

Hydraecia lucens Freyer (Large Ear). (61) Skipwith Common, M.V.L., August 6th; J.B. & C.R.H.

Agrotis ripae Hueb. (Sand Dart). (61) Spurn, M.V.L., July 7th; C.I.R.

Amathes castanea Esper (Neglected Rustic). (62) One of the red form taken at Strensall Common, August 15th; S.M.J. (63) Two type and two var. *neglecta* taken at M.V.L. at Agden Bridge, near Stocksbridge, August 8th; J.B.

Diarsia dahlii Hueb. (Barred Chestnut). (63) Deffer Wood, August 26th; A.M.R.H.

D. florida Schmidt. (61) Skipwith Common, two June 23rd; S.M.J.

Aporophyla lutulenta Schiff. (Deep-Brown Dart). (63) 1 ♀, Rossington Bridge, near Doncaster, September 19th; S.M.J.

Anchoscelis lunosa Haworth (Lunar Underwing). (62) Haxby, near York, five at M.V.L., September 14th; E.R. (64) Brayton, near Selby, at light, September 24th; S.M.J.

Tiliacea aurago Schiff. (Barred Sallow). (64) Brayton, near Selby, at light, September 11th; S.M.J.

Parastichtis ypsilon Schiff. (Dingy Shears). (63) Little Horton, Bradford, M.V.L., July 26th; J.B.

Cucullia absinthii L. (Wormwood). (63) Triangle, M.V.L., new to Halifax; W.E.C. Wakefield, M.V.L., August 10th (my third at one per year); A.M.R.H. Larvae found at Wath, Wombwell and Barnsley, early September, evidently established over a wide area in South Yorkshire; J.H.S.

C. chamomillae Schiff. (Chamomile Shark). (64) Bishop Wood, M.V.L., one May 14th; J.B. One at light at Brayton, near Selby, October 3rd, an unusual date, possibly a second brood; S.M.J.

C. umbratica L. (Shark). (63) At Halifax one found on a fence, July 9th, and one to M.V.L., July 22nd; W.E.C. (64) Knaresborough, M.V.L., June 3rd; W.B.

Lithomoia solidaginis Hueb. (Golden Rod Brindle). (63) Agden Bridge, near Sheffield, M.V.L., August 13th, a fine series in perfect condition; J.B. & C.R.H.

Leucania straminea Tr. (Southern Wainscot). (61) Skipwith Common, June 23rd; S.M.J.

Hadena suasa Schiff. (Dog's Tooth). (61) Spurn, M.V.L., July 7th; C.I.R.

Heliophobus sordidus Bork. (Large Nutmeg). (64) At sugar in my garden at Selby, June 9th, new to me here; S.M.J.

Zanclognatha tarsipennalis Tr. (Fan-Foot). (63) Triangle, M.V.L., new to Halifax; W.E.C. (64) Headingley, Leeds, at light, June 25th to July 8th; C.C.S.

Z. nemoralis Fab. (Small Fan-Foot). (63) Wombwell, near Barnsley; J.H.

Schrankia costaestrigalis Steph. (Pinion-Streaked Snout). (61) Skipwith Common, on a grass head at dusk and at M.V.L., June 10th; C.I.R.

Phytometra viridaria Clerck (Small Purple Barred). One flying in the daytime in Douthwaite Dale, May 18th; J.P.

Sterrha dimidiata Hufn. (Single Dotted Wave). (64) Harrogate, M.V.L., July 4th; C.I.R.

Scopula remutaria Hueb. (Cream Wave). (62) Buttercrambe Woods, May 24th; S.M.J.

Pseudoterpna pruinata Hufn. (Grass Emerald). (63) Rossington Bridge, near Doncaster, September 19th; S.M.J. (64) Harrogate, M.V.L., July 4th; C.I.R.

Trichopteryx polycommata Schiff. (Barred Tooth-Striped). (64) Upper Grass Wood, Grassington, 1 ♀ at rest on an ash trunk, May 17th. A few ova were laid and I have two pupae; C.I.R. New to Yorkshire.

Eupithecia albipunctata Haworth (White-Spotted Pug). (64) Harrogate, M.V.L., August 12th; C.I.R.

E. tantillaria Boisd. (Dwarf Pug). (62) Buttercrambe Woods, one May 24th; S.M.J.

E. sobrinata Hueb. (Juniper Pug). (64) Far Headingley, Leeds, at light, July 15th, July 24th and August 2nd; C.C.S.

Anticollix sparsata Tr. (Dentated Pug). (64) Three noted in a damp wood three miles south of Selby, July 7th, S.M.J.

Chloroclysta miata L. (Autumn Green Carpet). (64) Several at M.V.L. at Grass Wood, Grassington, September 12th and September 19th; J.B. & C.R.H.

Lampropteryx suffumata Schiff. (Water Carpet). (62) Pickering, three ab. *piceata* and one type, May 18th; E.R. (64) Bishop Wood, M.V.L., one ab. *piceata*, May 7th; J.B.

Nycterosea obstipata Fab. (Gem). (63) Triangle, Halifax, M.V.L., October 16th; W.E.C. (64) Harrogate, M.V.L., August 12th; C.I.R.

Biston betularia L. (Peppered). (63) Huddersfield, type, M.V.L., June 22nd; E.W.A. Bradford, type, M.V.L., May 27th; J.B. (64) Knaresborough, type, M.V.L., June 21st; W.B.

Epione repandaria Hufn. (Bordered Beauty). (62) Runswick Bay, August 18th; I.R.D.

Cepphis advenaria Hueb. (Little Thorn). Several reared from ova from a ♀ taken in South Yorkshire in June, 1958; S.M.J.

Deilephila porcellus L. (Small Elephant Hawk). (64) Knaresborough, M.V.L., June 21st; W.B. Harrogate, M.V.L., June 26th; C.I.R.

Acherontia atropos L. (Death's Head Hawk). (63) A full-fed larva found at Womersley, near Pontefract, September 10th, by Miss Janet Greaves was taken to J.A. A moth picked up from a pavement at Mold Green, Huddersfield, on July 2nd, was taken to E.W.A. (64) A pupa found in a potato field at Cawood, five miles from Selby, October 17th, was taken to S.M.J.

Dilina tiliae L. (Lime Hawk). (63) One found on a doorstep at Goole, June 1st, by Brian Austwick was taken to J.A.

Celerio galii von Rott. (Bedstraw Hawk). (63) A ♀ emerged June 28th, ♂♂ July 18th and 19th, reared from larvae found at Eccleshill, Bradford, 5/9/58; J.B. A ♀ found at Horbury, August 13th, and taken to A.M.R.H. had probably been a good specimen and full of ova before it was crushed by somebody's foot.

Herse convolvuli L. (Convolvulus Hawk). (63) One found in Green's Timber Yard, Lawkholme Lane, Keighley, October 24th, was taken to Keighley Museum; J.A.

Drymonia dodonaea Schiff. (Marbled Brown). (61) Two, well worn, at M.V.L. on Skipwith Common, June 11th; J.B. (The previous record, *The Naturalist*, 1959, page 14, should also read Skipwith Common, not Bishop Wood.)

D. ruficornis Hufn. (Lunar Marbled Brown). (64) Larvae beaten from oak at Bishop Wood, June 20th; C.I.R.

Pterostoma palpina L. (Pale Prominent). (61) More numerous than expected at Skipwith Common, M.V.L., June 11th; J.B. & C.R.H.

Cerura hermelina Goeze (Poplar Kitten). (64) Bishop Wood, four at M.V.L., May 7th; J.B.

C. furcula Clerck (Sallow Kitten). (64) Knaresborough, M.V.L., June 21st; W.B.

Nomophila noctuella Schiff. (63) Fairly common at Wath-on-Dearne in early September, not previously seen in the district; J.H.S.

Pyrausta aurata Scop. (64) One near Knaresborough, June 3rd; W.B.

Lasiocampa quercus L. (Eggar). (63) Larvae taken on Denholme Moor 14/8/58 were slightly but uniformly darker than those from other local moors, and one was of the nigger-brown variety. The latter and one other produced dark varieties of moth, a ♂ which emerged June 9th and a ♀, June 28th; J.B.

Euxanthis zoegana L. (61) One taken at Barnby, near Pocklington, July 3rd; S.M.J.

Aegeria culiciformis L. (Large Red-Belted Clearwing). (64) Many empty pupal cases, several pupae and one moth seen in Bishop Wood, May 10th; S.M.J.

Sphecia bembeciformis Hueb. (Lunar Hornet). (63) Two emerged June 28th from a log cut from a sallow tree in my garden at Little Horton, Bradford; J.B.

Plutella maculipennis Curtis. (63) Little Horton, Bradford, one May 14th. Particularly looked for but no others seen; J.B. (64) First appeared at light at Headingley, Leeds, June 22nd, but has been far from common; C.C.S. No other observer refers to this species this year.

Coleoptera (J. H. Flint): The year started well with good conditions for beetle collecting and plenty of species were active in hot sunshine in May. In the hot dry conditions of June, however, beetles became less easy to find and although a fair number of species were taken at Bishop Wood on June 20th beetles were not plentiful, and the following day, Allerthorpe Common, scorched dry, was exceedingly unproductive, a shallow sand-pit, for example, being almost devoid of beetle life. Experience elsewhere showed that ground beetles had withdrawn from the exposed dry ground and were well down under cover, retreating with the moisture, and some old sacking at Allerthorpe provided shelter for a number of *Amara*. In July and August vegetation became very dry and sweeping was so profitless that most coleopterists in Yorkshire seem to have gone into aestivation themselves. The dry conditions continued until mid-October and the autumn dung beetles were much less numerous. Fungi were notably scarce and the fungus beetles had not put in an appearance in any numbers by the time this report was compiled. One might expect them to be about in early November.

In spite of these conditions some noteworthy species have been reported, though not all from this year's collecting. The writer has examined a large amount of material collected during the past few years by Mr. J. Armitage and Miss J. Parkin of the Leeds City Museum and found one beetle (noted below) not previously reported from Britain. Records have also been received from Mr. E. W. Aubrook, Dr. W. D. Hincks and Mr. F. H. Myers, and I am indebted to my wife for some specimens. The result is one beetle new to Britain, one new to the county and 14 new to the vice-counties. The initials used in the following notes are those of the above and the writer.

Bembidion articulatum (Pz.) (61) Skipwith Common, 9/53; J. Horsman (det. J.H.F.).

Badister sodalis (Duft.) (64) Bishop Wood, 13/11/58; J.A. and J.P.

Amara ovata (F.) (62) Gundale, 26/6/58; J.A. (det. J.H.F.).

**Pristonychus complanatus* Dej. (64) Bolton Abbey, 26/2/59; J.A. and J.P. (det. J.H.F.).

†*Agonum nigrum* Dej. (63) Halifax; Tho. Hick. Two old specimens, *ex coll.* J. R. Hardy now in the Manchester Museum. *Teste* W.D.H.

Hydroprus ferrugineus Steph. (64) Golden Acre Park, Leeds, 24/11/51; J. Horsman (det. J.H.F.). A single example taken from a small stream issuing from a spring. This very local and rare beetle was last taken in V.C. 64 in the Headingley district of Leeds in 1906.

**Rantus pulverosus* Steph. (63) Thorne, 4/3/59; J.H.F.

Choleva glauca Britt., *fagniezi* Jean., *jeanneli* Britt. (64) Askham Bog, 19/2/59 and subsequently; J.A. and J.P. In moles' nests.

**Leiodes dubia* (Kug.) (64) Malham Tarn, 7/58; J.H.F.

Agathidium nigrinum Stm. (64) Meanwood Valley, Leeds, 8/11/58; J.H.F. In grass tufts.

**Omalium allardii* Fair. (64) Adel, Leeds, 28/11/58; J.H.F.

Acidota cruentata (Mann.) (64) Meanwood Valley, in grass tufts, 13/11/58; J.H.F.

**Gabrius splendidulus* (Grav.) (64) East Keswick, 13/3/55; J.A. (det. J.H.F.).

Quedius othiniensis (Joh.) (64) Askham Bog, in numbers in moles' nests, 5/2/59; J.A. (det. W.D.H.).

Q. laevigatus (Gyll.) (64) Ilkley, 4/5/58; J.A. (det. J.H.F.).

**Gyrophaena gentilis* Er. (63) Smith Wood, near Farnley Tyas, Huddersfield, 3/10/59; E.W.A. Seventy specimens in the only two groups of fungus found.

**G. minimus* Er. (63) A single example with the above.

‡*Simplocaria maculosa* Er. (61) Kelfield, 14/5/56; J.P. (det. J.H.F.). A single specimen by sweeping along the banks of the River Ouse; search for further examples in 1959 was unsuccessful. This is the first British record of this European species which can be seen in the field to differ from the common

S. semistriata (F.) by the spotted appearance caused by the patches of white pubescence.

Henoticus serratus (Gyll.) (63) Ravensknowle Museum, Huddersfield, a single specimen in the M.V. light trap, 22/7/59. (62) Hilla Green Bridge, Hackness, 23/5/59; E.W.A.

Antherophagus pallens (F.) (64) Malham Tarn, 7/58; J.H.F.

Corticaria fulva Comm. (63) Ravensknowle Museum cellar, Huddersfield, 27/5/59; E.W.A.

Triphyllus bicolor (F.) (62) Thornton-le-dale, 9/59; W.D.H.

Adonia variegata (Goeze) (61) Allerthorpe Common, 7/9/58; F.H.M.

Oedemera virescens (L.) (62) Gundale, Pickering, abundantly, 11/6/59; J.P. Beck Hole, Goathland, in numbers, 6/58; H. M. Russell.

**Orchesia micans* (Pz.) (61) Skipwith Common, 31/12/52; J. Horsman (det. J.H.F.).

Geotrupes spiniger (Marsh.) (64) Etchell Crags, Thorner, 4/9/59; J.H.F. This beetle is described as being 'common and widely distributed', *G. stercorarius* (L.) being 'less common'. The reverse would appear to be the case in Yorkshire for there are few records for *spiniger* and many for *stercorarius* and this is the first time the writer has encountered it in Yorkshire.

**Heptaulacus villosus* (Gyll.) (64) Etchell Crags, Thorner, on the sandy ground of the ' earthworks ', 7/58; J.H.F. A rare beetle of sandy places, only previously reported in Yorkshire from the sandhills at Redcar in 1921.

**Hoplia philanthus* (Füess.) Rievaulx, 18/6/59; J.P.

Zeugophora subspinosa (F.) (61) Scampston Hall, near Malton, 27/8/59; E.W.A. The only beetles seen on a very hot day.

**Chrysolina brunsvicensis* (Gr.) (64) Sicklinghall, 9/58; J.H.F.

**Phyllodecta laticollis* Suffr. (64) Bishop Wood, on poplar, 20/6/59; J.H.F. This is the scarcest of the three members of the genus and has only previously been reported in Yorkshire from Forge Valley in 1930.

Galeruca tanaceti (L.) (64) Gledhow, Leeds, 20/8/52; P. G. Tannett (det. J.H.F.).

Phyllotreta flexuosa (Ill.) (64) Malham Tarn, 7/56; W.D.H. Leathley, 10/5/59; Bolton Abbey, 7/6/59; J.H.F.

Apthona herbigrada (Curt.) (64) Etchell Crags, Thorner, 31/8/58; J.H.F.

Apion subulatum Kby. (62) Cayton Bay, 8/59; J.H.F.

**Eubrychius velatus* (Beck) (64) Malham, on *Potamogeton lucens* in the Tarn, 7/59; P. F. Holmes (det. W.D.H.). This rare beetle has only been recorded previously in Yorkshire from Wentbridge.

Odonata (J. H. Flint): There is very little to report, the only notes to hand being from Mr. J. Armitage who searched for *Brachytron pratense* Müll. unsuccessfully on Thorne Waste in May. He found *Libellula quadrimaculata* L. commonly and mostly immature (17/5/59). Mrs. H. E. Flint found *Agrion splendens* Harr. in numbers of the Wharfe at Harewood Bridge on 14/6/59, and the only other species reported are common Coenagriidae.

Hemiptera (J. H. Flint): The prolonged dry conditions of the summer considerably reduced the numbers of the Hemiptera generally. Psyllidae abounded on the hawthorn in early summer, but there was a striking reduction in the numbers of Typhlocybidae on the trees in September, where these hoppers had been present in large numbers after the wet summer of 1958. Pasture and open grassland dried out and as a result Jassidae were scarce, although large numbers of such species as *Macrosteles viridigriseus* Edw. and *M. sexnotatus* (Fall.) could be found in marshy places which had not dried out. Conditions could be said to have been favourable up to June and poor afterwards. A considerable number of interesting species have been taken or identified during the year. The writer has been able to examine a box from the Leeds City Museum of specimens collected some years ago by Dr. Hincks and Mr. John Wood, and these produced some uncommon species. I am also indebted to my wife for specimens collected when I was unable to accompany her. Most of the records (all except where otherwise attributed) are those of the writer, but it is hoped that the forthcoming work in the *Wayside and Woodland* series (which will have appeared by the time these notes are in print) will lead to an increase in the amount of work done on this order in the county.

HEMIPTERA HETEROPTERA

Aradus depressus (F.) (62) Mallyan Spout, 15/6/58, by sweeping; H. M. Russell.

**Nabis ericetorum* Scholtz (64) Adel Moor, Leeds, 8/11/58.
Calocoris fulvomaculatus (Deg.) (64) Bishop Wood, Selby, 20/6/59.
Stenotus binotatus (F.) (64) Cowthorpe, 3/8/42; W.D.H.
Capsus wagneri Rem. (64) Askham Bog, 16/6/43, 31/7/43; J.W.
**Notostira erratica* (L.) (65) Boroughbridge, 27/6/42; W.D.H.
**Megalocoleus molliculus* (Fall.) (64) Banks of River Wharfe, Arthington, on *Achillea millefolium*, 14/8/59.
**M. pilosus* (Schr.) (62) Clifton Ings, York, 18/7/42; W.D.H.
Macrotylus solitarius (Mey.) (64) Thorner, 18/7/58.
Gerris lateralis Schum. (64) Askham Bog, 19/4/59.
**Velia caprai* Tam. (63) Thorne, North Common and Moor Ends, 4/3/59.
Salda morio Zett. (64) Penyghent, at 1,700 ft., 3/7/42; W.D.H.
**Glaenocorisa propinqua* (Fieb.) (65) Sleightholme Valley, near Bowes, 19/7/59; Mrs. H. E. Flint. Quite commonly in a moorland tarn above the valley in company with *Corixa wollaston* D. and S. This uncommon species has been recorded previously only from the moors above Robin Hood's Bay in 1943.
**Corixa semistriata* (Fieb.) (63) Thorne, pond on North Common, 4/3/59.
C. falleni (Fieb.) (64) Brayton, Selby, 23/6/43; W.D.H.
**C. panzeri* (Fieb.) (63) Thorne, Moor Ends, 4/3/59.

HEMIPTERA HOMOPTERA

†*Aphrophora salicina* (Goeze) (64) Bishop Wood, Selby, 20/6/59.
Eupelix cuspidata (F.) (64) Golden Acre Park, Leeds, in numbers on dry hillside, 23/7/59.
**Graphocraerus ventralis* (Fall.) (64) Bishop Wood, Selby, 20/6/59.
Cicadula intermedia (Boh.) (64) Blubberhouses Moor, commonly on wet grassland at 1,000 ft., 30/8/59.
**Edwardsiana frustrator* (Edw.) (64) Meanwood, Leeds, 1/10/59.
†*E. tersa* (Edw.) (64) Arthington, on salix by the River Wharfe, 13/9/59.
†*E. fratercula* (Edw.) (64) Golden Acre Park, Leeds, 30/9/59; Roundhay Park, Leeds, 4/10/59.
†*E. hippocastani* (Edw., 1888) (64) Wothersome, Thorner, 10/57; Golden Acre Park, 30/9/59; and other Leeds localities.
†*Empoasca virgator* Rib. (64) This is the first published record of the occurrence of the species in Britain, though Dr. Le Quesne informs me (*in litt.*) that he has taken it fairly commonly in the south of England and Mr. Waterston has taken it around Edinburgh. It was taken in some numbers on willow at Wothersome, near Thorner, 23/9/59, and in September and October in the Leeds district at Adel, Meanwood and Roundhay, always on willow and wherever it was sought. It will probably prove to be common and widely distributed.
†*Calligypona elegantula* (Boh.) (64) Adel Bog, Leeds, 13/5/59.
Criomorphus moestus (Boh.) (64) Lindley, 17/5/59; Grantley, 23/5/59; in both cases apparently associated with *Deschampsia flexuosa*. It seems likely that this species, so far known only from Westmorland outside Yorkshire, will prove widely distributed in suitable habitats in the West Riding.
Aphalara exilis (Web.) (64) Adel district, Leeds, in several localities, 9/59.
†*Psyllopsis discrepans* (Flor.) (64) Wothersome, 23/9/59; Meanwood Valley, Leeds, 27/9/59; Roundhay Park, Leeds, 10/59. On ash.
Psylla brunneipennis Edw. (64) Grantley, 23/5/59, on sallow.
**Trioza galii* Först. (64) Golden Acre Park, Leeds, 6/9/59, and subsequently, commonly.
**T. albiventris* (Först.) (64) Roundhay Park, Leeds, on willow, 4/10/59.

Orthopteroid and Neuropteroid Orders (Allan Brindle): Trichoptera have not been generally plentiful during the year, the unusually dry summer having had a considerable effect on some habitats. With the partial drying up of a number of reservoirs, numbers of caddis larvae have been reported stranded on the sloping shores, their corpses affording a somewhat unusual food for ground beetles. The hygropetricous species, such as *Crunoecia* and *Tinodes* have been affected by the total disappearance of water, the film of moss or algae found in such habitats being completely shrivelled up. On the other hand the hill streams continued to provide a constant flow, though greatly reduced in amount. The lowland rivers whilst still containing water tended to become almost stagnant, with a consequent growth of

filamentous algae which trapped many of the small aquatic animals, and caddis larvae were difficult to find. It will be interesting to see the effect of the dryness of this year on the numbers of caddis next season. Another feature which helped to convey the impression of a shortage of caddis was the shortness of the flight period in comparison to normal years; the hot fine weather enabled the necessary business of the flight period to be completed within a much shorter time.

One species of caddis is new to the records this year. On June 23rd, 1950, Mr. P. F. Holmes, M.A., Warden of Malham Tarn Field Centre, took, at the Tarn, specimens of a caddis which would not fit any of the species described in the standard work (Mosely, 1939). The specimens were sent to Mr. D. E. Kimmins of the British Museum, who identified the species as *Agrypnetes crassicornis* McLachlan, a species new to the British Isles. It is a fairly large species but has reduced wings and is flightless, but is capable of rapid movement by skimming over the water surface. Its world distribution was Finland, N.W. Mongolia, and the Caucasus. The relevant description by Mr. Kimmins is in *Ann. Mag. Nat. His.*, 12th ser., 1039, 1952.

In contrast to the Trichoptera the dry summer has favoured aphides and the aphid-feeding Neuroptera. Many species have been much more common during the summer, *Chrysopa carnea* Steph. being unusually abundant during the late summer and autumn.

No records have been made in the Plecoptera. The records have now been correlated and show that we record 28 out of the 34 British species.

Hymenoptera (W. D. Hincks): 1959 will go down to history in regard to its weather but not as an outstanding insect year. A good season depends very much on the climatic conditions of the preceding years so perhaps the glorious summer of 1959 will bear entomological fruit in 1960. Perfect weather conditions have the effect of enabling insects to emerge normally, to mate, and to complete their adult life in the minimum time so that single-brooded and double-brooded species made only one or two brief appearances. Those species, such as many Parasitica, which have several broods, were more plentiful as one would expect, but here the limiting factor was the supply of hosts. In a wet year when the sun appears after several days of rain insects which have been confined to shelter flock to flowers to feed and then can easily be collected in considerable numbers. Under dry, optimum conditions on the other hand, insects maintain their activity, populations become scattered and difficult to find in collectable situations such as on flowers or herbage.

Mr. and Mrs. Flint report normal numbers of bees and sawflies in the Leeds district in spring and early summer but did not find any significant abundance of sawfly larvae. This corresponds with my own experience and at Malham in July I was surprised to see so few sawfly larvae compared with their extraordinary abundance there in 1958. Some garden species of sawflies however seem to have been specially favoured this year. *Cladius pectinicornis* disfigured the roses by chewing out many holes in the leaflets, *Blennocampa pusilla* twisted leaflets into cigar-shaped rolls and garden willows were heavily attacked by three or four species of *Nematus*. The gooseberry sawfly, *Nematus ribesii*, however, did not appear to be as common as usual. Bumble bees (*Bombus*) and social wasps (*Vespula*) enjoyed the weather conditions and were able to build up large colonies by the end of the season. Even now, in late October, large numbers of male *Vespula* spp. are scouring our fading gardens, awaiting the frosts which will put an end to their activity.

Our sectional excursion to Askham Bog in April proved to be a little too early in the season but several spring sawflies were collected. Parastica were plentiful in the Scarborough area in June, and at Malham, under unusually favourable conditions, in July. They continued to maintain their numbers into October when many species were noted in the Robin Hood's Bay district.

Progress continues to be made in working out our Yorkshire hymenopterous fauna and the list below is limited to new British, new county and vice-county records of species identified, for the years 1957-59. It excludes the very considerable number of new records in all three categories made during the Section's Survey of the Malham Tarn area as it has been thought best to leave these for treatment in the forthcoming Report of the Survey.

My sincere thanks are due to the following for help in the field: Messrs. J. Armitage, A. Brindle, H. N. Michaelis, H. M. Russell, and Mr. and Mrs. J. H. Flint. For assistance with the identification of critical species I am most grateful to Messrs. R. B. Benson (R.B.B.), G. J. Kerrich (G.J.K.), G. E. J. Nixon (G.N.) and J. F-

Perkins of the British Museum (Natural History) and to Dr. Marcus Graham (M.G.) of Oxford.

The following list includes 4 new British (‡), 23 new county (†) and 9 new vice-county (*) records.

ADDITIONS TO THE YORKSHIRE HYMENOPTERA 1957-59

Symphyta

**Dolerus puncticollis* Thoms. (64) Settle, 1♀, 25/5/58; Mrs. H. E. Flint. Leathley, 1♀, 10/5/59; J. H. Flint (W.D.H.).
**Pseudodineura fuscula* (Klug) (63) Whitewell, 10/6/34; J. W. Nixon (R.B.B.).
**Pachynematus truncatus* Benson (64) Askham Bog, 1♂, 19/4/59; W.D.H.
**Nematus viridis* Steph. (63) Bingley, St. Ives, 1♀, 8/6/46; J.W. (W.D.H.). Recorded from Allerthorpe (62) by Fordham (R.B.B.) under the name of *dispar*. The old record from Holgate (*Vict. Hist.*) under the name of *salicivorus* Cam., must be discarded because of doubts as to its identity.

Braconidae

†*Spathius pedestris* Wesm. (64) Leeds City Museum, 2/7/58, in some numbers with host, *Anobium punctatum*, in old tea chest received two years before from Helmsley; J.A. (W.D.H.).
†*Apanteles ferrugineus* Msh. (64) Askham Bog, 17/5/46; W.D.H.

Chalcidoidea

†*Trigonoderus princeps* Westw. (63) Keighley, Holmehouse Wood, 1♀, 8/6/41; J.W. (W.D.H., G.J.K.). (62*) Forge Valley, 8/9/52; W.D.H. (G.J.K.).
**Cheiloneurinus aphidivorus* (Mayr) (63) Bingley, St. Ives, 11/8/45, parasitised aphid, em. 3/9/45; J.W. (M.G.).
†*Copidosoma geniculatum* Dalm. (63) Keighley, 26/9/42; J.W. (G.J.K.).
†*Litomastix truncatulus* (Thoms.) (63) Keighley, 25/7/49; J.W. (M.G.).
†*L. sosares* (Wlk.) (62) Allerthorpe, 1/9/53; W.D.H. (M.G.).
†*Syrphophagus aeruginosus* (Dalm.) (64) Askham Bog, 15/7/44; W.D.H. (M.G.).
†*S. herbidus* (Dalm.) (62) Forge Valley, 8/9/52; W.D.H. (M.G.).
†*Prionomitus tiliaris* (Dalm.) (62) Forge Valley, 8/9/52; W.D.H. (M.G.).
†*Encyrtus swederi* Dalm. (64) Askham Bog, 15/7/44; W.D.H. (M.G.).
†*Aphycus hederaceus* (Westw.) (64) Askham Bog, 12/7/53; W.D.H. (M.G.).

Mymaridae

†*Alaptus fusculus* Hal. (64) Harrogate, Harlow Carr, in eggs of *Mesopsocus* spp. in larch twigs, Spring 1956, em. 14/6-23/7/56; E. Broadhead (W.D.H.). See Hincks, 1959, *Trans. Soc. Brit. Ent.* **13**: 144.
‡*A. pallidicornis* Fst. (62) Wrea Head, near Scalby, reared from Psocid eggs on leaves of rhododendron, 8/9/57, em. 25/9/57 to early 10/57. Also reared in numbers in 1958, W.D.H. (See Hincks, 1959, *loc. cit.*: 146.)
‡*Ooctonus sublaevis* Fst. (65) Masham, Hackfall Woods, 1♀, 26/9/48; W.D.H.
‡*Anaphes aries* Debauche (63) Shipley Glen, Roughside, 1♀, 9/9/47; J.W. (W.D.H.).
**A. lameerei* Debauche (61) Barlow, 1♀, 7/9/49; W.D.H.
‡*A. dorcas* Debauche (61) Kilnsea, Long Bank Dyke, 1♀, 23/7/53; W.D.H.

Proctotrupidae

†*Cryptoserphus cumaeus* Nixon (62) Robin Hood's Bay, Mill Beck, in some numbers visiting *Armillaria mellea*, 8/10/59; W.D.H.

Belytidae

†*Oxylabis thomsoni* Kieff. (64) Bolton Woods, 3/7/37; J.W. (G.N.).
†*Acropiesta flaviventris* Thoms. (64) Askham Bog, 1/6/46; W.D.H. (G.N.).
†*A. rufiventris* Kieff. (61) Welwick, 9/6/46; W.D.H. (G.N.).
†*Cinetus piceus* Thoms. (64) Bolton Woods, 4/10/43; W.D.H. (G.N.).
†*C. iridipennis* Lep. (63) Keighley, Holmehouse Wood, 8/10/49; J.W. (G.N.).
†*C. telon* Nixon (65) Jerveaulx, 16/10/47; W.D.H. (G.N.).
†*Belyta depressa* Thoms. (63) Keighley, Holmehouse Wood, 26/7/40; J.W. (64*) Brayton, near Selby, 23/8/44; W.D.H. (62*) Allerthorpe, 12/9/50; W.D.H (G.N.).
†*B. quadridens* Kieff. (63) Stanbury, 18/7/36; J.W. (G.N.).

†*Pantoclis trisulcata* Kieff. (65) Masham, 4/10/47; W.D.H. (G.N.).
†*Aclista fuscata* Thoms. (62) Beedale, 26/9/44; W.D.H. (G.N.).

Diptera (H. M. Russell): Generally speaking, the year has been a good one for the dipterist. Spring set the pace with relatively early dates for the emergence of such insects as the ' bee ' fly *Bombylius major* L. (Scarcroft 2/4/59), and members of the *Syrphidae*. However, the very dry conditions of mid-summer did not suit the daddy-longlegs flies (*Tipulidae*), and relatively few have been seen. The long dry autumn produced countless hordes of black and green fly (Aphids), and this food material has resulted in members of the *Syrphidae* being in evidence until November. The Syrphid species noted by me during a walk through Colton Woods on 1/11/59 were *Tubifera tenax* L., *Rhingia macrocephala* (Harris), *Episyrphus balteatus* (Deg.) and *Syrphus ribesii* (L.).

Work continues on the leaf-mining diptera (*Agromyzidae*) of the county, but excessively dry conditions throughout the spring severely reduced mining activity and the numbers of adults collected by sweeping.

The report contains 8 species new to the county and 8 new vice-county records. My thanks are due to Dr. W. D. Hincks for the records of flies visiting the honey agaric *Armillaria mellea* (Vahl.).Fr.

Scatopsidae

**Scatopse flavicollis* Mg. (62) Visiting *Armillaria mellea* at Mill Beck, Robin Hood's Bay, on 8/10/59; W.D.H.

Clythidae

**Clythia modesta* (Zett.) (62) With the above.

Helomyzidae

**Allophyla atricornis* (Mg.) (62) With the above.

Agromyzidae

†*Agromyza nigripes* Mg. (64) Askham Bog, near York, 20/6/59. This species mines *Glyceria*.
**A. reptans* Fall. (62) Adults reared from *Urtica dioica* L. taken at Goathland on 17/6/58.
†*Liriomyza artemisicola* de Meig. (64) Two specimens by general sweeping, Tadcaster, 20/6/59.
†*L. centaureae* Hg. (64) Adults were swept in small numbers at Bardsey, near Leeds, 17/6/59.
†*L. taraxaci* Hg. (64) Adults reared from *Taraxacum* taken at Scarcroft, near Leeds, on 14/7/59.
**Napomyza xylostei* Kalt. (62) Adults reared from mines in *Symphoricarpos rivularis* Suksdorf. taken at Goathland on 17/6/58.
†*Phytomyza affinis* Fall. (64) Fairly common by general sweeping, Scarcroft, near Leeds, 7/9/59.
†*P. intermedia* Sp. (64) Two specimens swept at Scarcroft, near Leeds, 26/6/59; det. K. A. Spencer. This species was described by K. A. Spencer in *Ent. Gaz.*, 1957, Vol. 8, page 21, from material taken at Hampstead, London, during June and August, 1954.
†*P. robustella* Hd. (64) Two specimens swept at Spiggott Hill Fen, Malham, 14/9/57.
†*P. scabiosae* Hd. (64) A single specimen swept at Aberford, near Leeds, 25/7/59.
**P. sonchi* R-D. (62) Specimens swept at Beck Hole, near Goathland, 16/6/58.

Chloropidae

**Chlorops pumilionis* Bjerk. (62) Pickering, 21/6/59.

Muscidae

**Alloeostylus diaphanus* (Wied.) (62) With the above.

Plant Galls (E. F. Gilmour): Notwithstanding the extremely good weather during the summer, proportionately fewer plant galls have been sent in by correspondents. A selection of these is given and I have to thank Messrs. F. E. Branson (F.E.B.) and T. F. Medd (T.F.M.) for their valuable assistance in sending material.

	Agent	*Plant*
HYMENOPTERA	*Cryptocampus medullarius* Hartig. (64) Askham Bog, 7/9/59; T.F.M.	*Salix atrocinerea* Brot.
	Rhodites rosae Linn. (64) Walkingham Warren, near Farnham, 3/8/59; F.E.B.; Brearton, 9/8/59; F.E.B.	*Rosa canina* L.
	Andricus testaceipes Hartig. (64) South Stainley, 3/8/59; F.E.B.	*Quercus robur* L.
	Neuroterus quercus-baccarum (Linn.) f. *lenticularis* (Oliv.) (64) South Stainley, 3/8/59; F.E.B.	*Quercus robur* L.
DIPTERA	*Dasyneura ulmariae* (Bremi-Wolf) (64) Walkingham Warren, near Farnham, 3/8/59; F.E.B.	*Filipendula ulmaria* (L.) Maxim.
	D. fraxini (Kieff.) (64) River Nidd, between New Bridge and Ross Bridge, Birstwith, 9/8/59; F.E.B.	*Fraxinus excelsior* L.
	D. crataegi (Winn.) (64) Brearton, 9/8/59; F.E.B.	*Crataegus monogyna* Jacq.
	Pegohylemyia signata (Brischke) (64) Askham Bog, 7/9/59; T.F.M.	*Dryopteris filix-mas* (L.) Schott.
	P. signata (Brischke) (64) Hovingham South Wood, 11/6/59.	*Dryopteris dilatata* (Hoffm.) A. Gray
ACARI	*Eriophyes similis* Nalepa (64) South Stainley, 3/8/59; F.E.B.	*Prunus spinosa* L.
	E. nalepai Focken. (64) River Nidd between New Bridge and Ross Bridge, Birstwith, 9/8/59; F.E.B.	*Alnus glutinosa* (L.) Gaertn.
	E. brevitarsis Focken. (64) River Nidd, between New Bridge and Ross Bridge, Birstwith, 9/8/59; F.E.B.	*Alnus glutinosa* (L.) Gaertn.
	E. macrorrhynchus Nalepa. (64) River Nidd, between New Bridge and Ross Bridge, Birstwith, 9/8/59; F.E.B.	*Acer pseudoplatanus* L.
	Epitrimerus trilobus Nalepa (64) South Stainley, 3/8/59; F.E.B.	*Sambucus nigra* L.
	Psyllocoptes acericola Nalepa. (64) River Nidd, between New Bridge and Ross Bridge, Birstwith, 9/8/59; F.E.B.	*Acer pseudoplatanus* L.
FUNGI	*Taphrina ulmi* Johans. (64) River Nidd, between New Bridge and Ross Bridge, Birstwith, 9/8/59; F.E.B.	*Ulmus glabra* Huds.

BOTANY

(Miss D. Walker): After an early spring with notable absence of east wind and late frosts, the weather continued to be extremely dry. As early as Whitsuntide the effects of the warmth and sunshine were noticeable at the Kirby Moorside meeting. All fears that this meeting would be too early to see many flowers were quickly seen to be groundless, many plants being much in advance of normal.

As the summer progressed the early flowering was still very marked. From all parts of the county the profuse flowering has been noted, although most plants had a short flowering season. Garden plants also flowered well, roses being specially good, though these and many other plants suffered severely from mildew.

The effects of the drought were being felt by the beginning of July. Grasslands in some areas were becoming parched and yellow, and plants normally growing in water were being left high and dry. By the end of August, Askham Bog was so dry that even the ditch bottoms were dry and firm enough to walk along. As early as the end of June a Beech tree at Leckby Carr was seen to be showing autumn colouring and there are reports of Beech in other parts of the county in that state in early

July. In late summer the parched state of the grassland over much of the county contrasted sharply with the greenness of Upper Swaledale pastures where a fair crop of new grass was to be seen. With the exception of one or two districts reports from most areas show that there has been little evidence of secondary blooming.

Most fruits have been excellent. Apples, pears and plums bore heavy crops and soft fruits were very good. Limes have fruited particularly well. By Harrogate Stray they retained a good show of fruits in addition to the thick, crunchy carpet that had been shed. Oak and Horse Chestnut fruited fairly well, Beech and Sycamore poorly, whilst Ash appears to have failed. Rose hips were very fine, especially up the dales. Many hedges in the Northallerton-Richmond area were defoliated by caterpillars and in some of the dales—Swaledale and Dentdale in particular—Bird Cherry trees were a fantastic sight, being completely enveloped in webbing. They were still festooned in August with the tattered remains. By late September flowering plants were mostly over and even the ' shoddy ' aliens were disappearing as farmers continued work on the land after the early harvest.

The Harrogate Naturalists report that *Silene nutans* on the cliff at Knaresborough is threatened with destruction by the building of a house immediately in front of the site. Five plants have accordingly been removed to a similar position farther along the cliff. Seed was also saved and scattered in the new position and it is hoped the rescue operation will be successful.

Plant Records (C. M. Rob): The abnormally dry summer has had rather less effect on plant life than might have been expected. Flowering periods were shorter than in wetter seasons but many plants have had a second blooming.

One important consequence of the drought has been the exposure of large areas of open ground in the beds of empty or depleted reservoirs and some very interesting observations have been made in the Washburn Valley by Mrs. Duncan and Miss Dalby on the plants which have appeared on the bared mud. At Swinsty Reservoir they report a fine show of *Limosella aquatica* (Mudwort), a plant not seen in the West Riding for many years. *Alopecurus aequalis* has also been found at Swinsty and Mrs. Duncan and Miss Dalby have discovered *Juncus filiformis* (Slender Rush) at Fewston. The plants of this very interesting addition to the Yorkshire flora grow about the normal shore-line of the reservoir and have evidently been there for many years. From the head of Lindley Reservoir Dr. Sledge reports the hybrid thistle *Cirsium arvense* × *palustre* and another interesting hybrid, the cross between the Oxford and Sticky Ragworts, × *Senecio londinensis* has been found at Frizinghall by Mr. Hewson.

Continuing his work on the distribution of the two species of bindweed, the Rev. P. M. Garnett finds that *Calystegia sepium* is rural in distribution while the alien *C. sylvestris* tends to occur in the more urban areas. There is still much work to be done before the distribution of these two species is properly known. Mr. Garnett also reports that the new Doncaster by-pass road will miss the Wentbridge station for *Dipsacus pilosus* (Small Teasle) by about fifty yards. He was unable to find any *Orobanche reticulata* (Thistle Broomrape) at Hook Moor this year but the plant was seen on the Birdsall Y.N.U. excursion and a few spikes occurred at Etchell Crags where only the hawthorn scrub protected them from trampling by bullocks. At the Ripon station only about four spikes were seen despite a bumper crop of thistles. The well-known station for *Gagea lutea* (Yellow Star-of-Bethlehem) at Tanfield has been severely damaged by pigs but there are several other colonies in the district and Mr. Branson reports it in small quantity near Ripon. Miss Crackles points out an error in the 1957 report where the localities for *Alchemilla glabra* and *A. vestita* have been interchanged.

Mrs. Houseman, Mr. Magee and others have continued their work on the wool and other aliens of the West Riding and have a number of new records especially in the Bradford area, some new to Britain. Aliens have flourished in certain localities and some plants have flowered for the first time. In other places they have been less than usual.

Mrs. Pyrah has sent a further note on *Corrigiola littoralis* supplementing that given in *The Naturalist* (6, 1959). The plant is more abundant at Methley Junction than at Pontefract where the main Devon-Leeds line crosses the Knottingley line, and from information supplied by a foreman and ganger it is now known to have grown here for not less than twenty years. Nine years ago a concentrated effort was made to rid the track of this ' mossy pest ' which had spread in all directions.

Six gangers dug and cleared away ballast to a depth of six inches along the whole of the double track for 300 yards. Yet neither this nor a return to the hoe and weed killer has suppressed the plant.

Much publicity has been given in the daily press to the occurrence of *Datura stramonium* (Thorn Apple) and in some places the police have taken specimens to schools and warned pupils about the plants' dangerous qualities. There have been rather more plants both of *D. stramonium* and *D. ferox* than in past years but nothing to warrant the publicity they have received. As *Datura* is one of the several 'fireweeds' perhaps the present-day method of clearing stubble fields by burning has done something to encourage the plants.

The section has been well represented at field meetings and the experiment of a sectional field meeting held at Keld, upper Swaledale, on August 29th proved very successful. B.S.B.I. mapping cards were used at all excursions and resulted in substantial additions to the areas visited. Detailed reports of field meetings have appeared in *The Naturalist*.

I should like to thank all who have sent in records or helped in other ways in this report and to ask for their continued support in the future.

Key to Initials.—F. E. Branson, R. Collins, Miss E. Crackles, Mrs. J. E. Duncan, J. N. Frankland, P. M. Garnett, P. Grewe, Miss M. S. Hewitt, Mrs. F. Houseman, I. C. Lawrence, J. D. Lovis, L. Magee, T. F. Medd, F. Murgatroyd, G. A. Nelson, Miss M. M. Norman, Miss C. M. Rob, W. A. Sledge, D. J. Tennant, C. Thompson, E. Thompson, Mrs. M. Thompson.

Thelypteris palustris Schott (64) Sharow Mires; D.J.T.

Ranunculus parviflorus L. (61) Carnaby, near Bridlington; M.S.H.

Fumaria micrantha Lag. (65) Leckby, arable field, abundant where a single plant occurred in 1954; C.M.R.

Draba incana L. (65) Gilmanscar, Bowes; Y.N.U. Excursion.

D. muralis L. (65) Still at Sleightholmedale, near Bowes (see Baker's *North Yorkshire*); Y.N.U. Excursion.

Stellaria neglecta Weihe (64) Ripley; F.E.B.

Minuartia verna (L.) Hiern (64) Nidd bank near Birstwith; F.E.B.

Rubus sublustris Lees (det. E. S. Edees) (61) Allerthorpe Common; R.C.; (63) Canal bank, Leeds; R.C.; (64) Canal bank, Leeds, and Jackdaw Quarries, Stutton; R.C.

R. sprengelii Weihe (det. E. S. Edees) (64) Meanwood Valley, Leeds; R.C.

R. polyanthemus Lindeb. (det. E. S. Edees) (63) Shirley Pool; R.C.

Crataegus oxyacanthoides Thuill. (64) Hedge at Collingham; G.A.N. and M.M.N.

Epilobium adenocaulon Hausskn. (63) Shirley Pool, Askern; Y.N.U. Excursion; (64) Acomb Road, York; T.F.M.

E. roseum Schreb. (64) York; T.F.M.

Myriophyllum verticillatum L. var. *pectinatum* DC. (64) Shallow pond, Poppleton Road, York; T.F.M. (det. N. D. Simpson).

Callitriche obtusangula Le Gall (63) Askern; Y.N.U. Excursion.

C. platycarpa Kütz. (63) Askern; Y.N.U. Excursion.

Oenanthe crocata L. (65) Keld at 1,100 ft.; Y.N.U. Bot. Sect. Excursion.

Polygonum minus Huds. (64) Margin of reservoir, Stocks-in-Bowland; J.N.F.

Rumex longifolius DC. (63) Causeway Foot and Ogden; F.M.

Symphytum tuberosum L. (64) Stocks-in-Bowland; J.N.F. Ilkley; J.E.D. Bramham Park; C.M.R.

Calystegia sepium (L.) R.Br. (61) Breighton; P.M.G. (62) Scarborough; T.F.M. (63) Sprotborough and Wentbridge; P.M.G. (64) Birkin; P.M.G. Acomb; T.F.M.

Verbascum virgatum Stokes (61) Scampston 1957 (det. J. E. Lousley); E.C.

Limosella aquatica L. (64) Plentiful on east side of Swinsty Reservoir; J.E.D. and M.D.

Veronica catenata Pennell (64) Bishop Wood and Fairburn Ings; L.M.

Euphrasia confusa Pugsl. (det. P. F. Yeo) (64) Jackdaw Quarry, Stutton; R.C.; Malham Cove; R.C. (65) Bowes; R.C.

E. borealis Wettst. (det. P. F. Yeo) (65) Bowes; R.C.

Orobanche minor Sm. (61) Fangfoss, on *Trifolium sp.*; C. Thompson.

×*Mentha piperita* L. (61) Setterington; E.C. and C.M.R.

M. alopecuroides Hull (64) Arncliffe; J.E.D.

Thymus drucei Ronn. (63) Dunhill reservoir, Huddersfield; R. Crossley, per F.M. Unknown elsewhere in this part of the vice-county.
Scutellaria minor Huds. (61) Skipwith Common; J.D.L. and W.A.S. (64) Still at Adel Bog, near Leeds; R.C.
Senecio squalidus × *viscosus* (×*S. londinensis* Lousley) (63) Frizinghall; F. Hewson.
Cirsium arvense × *palustre* (64) North end of Lindley Reservoir; W.A.S.
Lactuca virosa L. (64) Wall at Thorparch; G.A.N.
Alisma lanceolatum With. (61) Broomfleet; E.C.
Potamogeton alpinus Balb. (64) Greenfield Beck, Upper Wharfedale; J.E.D.
P. friesii Rupr. (61) Old Howe, North Frodingham; E.C.
P. pusillus L. (64) Lagoon, Otley; F.H.
P. obtusifolius Mert. & Koch (62) Fairfax Lake, Gilling woods; C.M.R.
Convallaria majalis L. (63) Shroggs Park, Halifax; F. M. Confirmation of old record.
Juncus tenuis Willd. (63) Idle; L.M. (64) Swinsty; J.E.D. and M.D.
†*J. filiformis* L. (64) Fewston; J.E.D. and M.D. New to Yorkshire.
Allium vineale L. (62) Holtby; C.M.R. (63) Blackburn Valley, Halifax; F.M. (64) Knaresborough; F.E.B.
Lemna gibba L. (64) River Aire, Baildon; F.H. and F.M.
Carex pseudocyperus L. (61) Brickyard, Melbourne; E.C. (63) Newmillerdam; Barnsley Naturalists.
C. strigosa Huds. (62) Sleightholmedale, Kirby Moorside; Y.N.U. Whitsun Excursion.
C. digitata L. (62) Felled woodland, Sleightholmedale, Kirby Moorside; Y.N.U. Whitsun Excursion.
C. lasiocarpa Ehrh. (64) Old peat bog, Fenton Trans, Church Fenton; E.T.
C. divulsa Stokes (62) Kirby Moorside; R.C. and M.M.N., Y.N.U. Whitsun Excursion.
C. polyphylla Kar. & Kir. (64) Studley Park, near entrance to Fountains Abbey; C.M.R. and N. D. Simpson.
Catabrosa aquatica (L.) Beauv. (65) Greta valley, Bowes; Y.N.U. Excursion.
Arrhenatherum elatius (L.) Beauv. var. *tuberosum* Gilib. (62) Orra, Bilsdale; T.F.M.
Calamagrostis epigejos (L.) Roth. (62) Roadside between Skelton and Saltburn; I.C.L. and C.M.R.
Alopecurus aequalis Sobol. (64) Swinsty Reservoir; W.A.S.

Aliens and Casuals

Lepidium latifolium L. (63) Canal bank, Stourton, Leeds; M.M.N.
Diplotaxis tenuifolia (L.) DC. (64) Otley; F.H.
Corrigiola littoralis L. (63) Railway near Potteric Carr; P.M.G.
Medicago falcata × *sativa* (× *M. varia* Martyn) (63) Derne Valley; P.M.G.
Lathyrus hirsutus L. (62) Railway siding, Topcliffe Station; C.M.R.
Potentilla intermedia L. (63) Halifax, weed in gardens; F.M.
Angelica archangelica L. (63) Canal bank, Stourton, near Leeds; M.M.N.
Heracleum mantegazzianum Somm. & Levier (62) Poole Sanatorium, Nunthorpe; I.C.L. and C.M.R. (63) Bretton; E. Thompson. (64) Swillington; L.M. Ripon; C.M.R.
Linaria repens (L.) Mill. (63) Ogden, Halifax; F.M.
Veronica filiformis Sm. (64) Ilkley; J.E.D.; roadside between Halton Gill and Litton, in several places; G. A. Shaw.
Lathraea clandestina L. (64) Wood at Askham Richard; G.A.N. (*Nat.*, 127-8, 1959).
Verbena officinalis L. (62) Catton; C.M.R. Introduced with shoddy manure. (64) Otley and Shipley; L.M. and F.H.
Gnaphalium luteoalbum L. (63) Shipley, in carrot bed dressed with shoddy; F.H.
Lactuca tartarica (L.) C. A. Mey. (64) Sidings at Otley; F.H.
Cicerbita macrophylla (Willd.) A. Gray (61) South Cave; P.G. Goodmanham; Mrs. M. Thompson. (63) Dowley Gap; L.M.
Lilium martagon L. (62) Rievaulx; C.M.R. (64) Plumpton Rocks; M.M.N.
Allium paradoxum (Bieb.) G. Don (64) Skell bank, Ripon; M.M.N.
Setaria verticillata (L.) Beauv. (63) Shipley; L.M. (64) Baildon; L.M.

Bryology (G. A. Shaw): The Section has lost two valued members during the

year by the death of Miss D. Hilary and Mr. A. Thompson. Obituary notices have already appeared in *The Naturalist*.

Two field meetings have again been held during the year, the first at Aketon marsh near Follifoot, in May, and the second in upper Dentdale in September. For the latter we took advantage of the special ramblers' train to Appleby, which has on several occasions in the past enabled us to visit remote parts of the county which would normally be inaccessible for a day excursion. While at Dent we had in mind several old records which have never been confirmed, notably *Targionia hypophylla*, recorded by Lees and West in 1878 between Dent station and the marble works, and *Aulacomnium turgidum*, recorded by the same pair on the N.E. shoulder of Whernside. Unfortunately, we were not able to confirm either record.

The low level of water in the Washburn reservoirs has resulted in the exposure of large areas of mud, which are bearing interesting associations of bryophytes; for example, *Riccia glauca*, *R. crystallina*, *Fossombronia wondraczekii*, *Pseudephemerum nitidum*, *Physcomitrella patens* and *Physcomitrium sphaericum*. The last is a most interesting record, having been found in the county only once previously, at Copgrove in 1948 by E. C. Wallace.

During the visit of the British Bryological Society to Barnard Castle, a moss new to Britain (*Tortula virescens* (De Not.) De Not.) was detected on ash trees at Abbey Bridge, near Egglestone Abbey (V.C. 65). *Isothecium striatulum* (Spruce) Kindb. from Gordale Scar is new to Yorkshire.

The more interesting records are listed below:

†= New to Yorkshire. *=New to Vice-County.

Mosses

Oligotrichum hercynicum (Hedw.) Lam. & DC. (65) Great Blake beck, on Y.N.U. Excursion. (64) Darley quarry, Birstwith; F.E.B.

Fissidens rufulus B. & S. (64) Mackershaw; F.E.B.

F. osmundoides Hedw. (64) Darley quarry, Birstwith; F.E.B.

Pleuridium subulatum (Hedw.) Lindb. (64) Boggy field near Ripley; F.E.B.

Ditrichum heteromallum (Hedw.) E. G. Britton (64) Quarry near Grantley Hall; F.E.B.

Pseudephemerum nitidum (Hedw.) C. Jens (64) Swinsty reservoir; W. A. Sledge.

Encalypta streptocarpa Hedw. (63) Gunthwaite; E. Thompson.

†*Tortula virescens* (De Not.) De Not. (65) On ash trees, Abbey Bridge, near Egglestone Abbey; (*Trans. B.B.S.*, vol. 3 part 4).

**Grimmia alpicola* Hedw. (65) By the Tees at Startforth, opposite Barnard Castle; (*Trans. B.B.S.*, vol. 3, part 4).

G. stirtoni Schp. (64) East boundary wall of Fewston reservoir; Miss M. Dalby.

Physcomitrium pyriforme (Hedw.) Brid. (64) Field, Cayton Gill, near Ripley; F.E.B.

P. sphaericum (Schkuhr) Brid. (64) Swinsty reservoir; W. A. Sledge.

Physcomitrella patens (Hedw.) B. & S. (64) With the last; W. A. Sledge.

†*Philonotis fontana* (Hedw.) Brid. var. *tomentella* (Mol.) Dix. (65) In a rock crevice below High Force; (*Trans. B.B.S.*, vol. 3, part 4).

Zygodon viridissimus Hook. & Tayl. var. *viridissimus* (64) Mackershaw; F.E.B.

Orthotrichum diaphanum Brid. (64) Garden at Knaresborough; F.E.B.

Fontinalis squamosa Hedw. (65) Birk Gill, near Masham; F.E.B. (64) Ravensgill; F.E.B.

Leucodon sciuroides (Hedw.) Schwaegr. (64) Wall between Lofthouse and How Stean; F.E.B.

Hookeria lucens (Hedw.) Sm. (65) Great Blake beck; Y.N.U. Excursion.

Hygroamblystegium fluviatile (Hedw.) Loeske (64) Rocks in River Nidd, Birstwith; F.E.B.

†*Isothecium striatulum* (Spruce) Kindb. (64) Gordale Scar; F. Rose, 1955 (*Trans. B.B.S.*, vol. 3, part 3, 1958).

Liverworts

Riccia glauca L. (64) Head of Swinsty reservoir; Miss M. Dalby, W. A. Sledge.

R. crystallina L. (64) Swinsty reservoir; Miss M. Dalby, W. A. Sledge.

Riccardia sinuata (Dicks.) Trev. (64) Quarry near Grantley Hall; F.E.B.

continued on page 30

YORKSHIRE

INCOME AND

Year ending

1958 £	s.	d.	INCOME	£	s.	d.
445	18	6	Subscriptions Received and Due	507	11	4
19	13	5	Sale of Mycological Papers, Russula, etc.	7	9	6
16	6	3	Sale of Other Publications	5	11	2
33	3	6	Interest—General Fund	28	9	4
30	10	2	Donations—General Fund	15	14	6
	—		Income Tax Recovered	28	3	9
1	19	5	Excess of Expenditure over Income		—	
£547	11	7		£592	19	7

BALANCE SHEET

1958 £	s.	d.		£	s.	d.	£	s.	d.
			ACCUMULATED FUNDS—GENERAL:						
100	0	0	Booth Fund	100	0	0			
100	0	0	Cheeseman Fund	100	0	0			
250	0	0	R. C. Fowler-Jones Legacy	250	0	0			
	—		Bayford Legacy	100	0	0			
450	0	0					550	0	0
			LIFE MEMBERS' ACCOUNT (brought forward)	477	0	0			
			Less Transfer Income and Expenditure Account	297	0	0			
477	0	0	*Less* Transfer Subscriptions Account	15	0	0	165	0	0
			INCOME AND EXPENDITURE ACCOUNT:						
			Transfer from Life Members' Account	297	0	0			
			Excess Income over Expenditure for year	61	19	2			
927	0	0		358	19	2			
188	1	7	*Less* Balance brought forward	188	1	7			
738	18	5					170	17	7
			MYCOLOGICAL FUND:						
			Balance brought forward...	191	8	9			
			Donation	20	0	0			
			Sales	25	18	4			
				237	7	1			
			Less Cost of Cortinarius, Pt. II	249	10	3			
191	8	9	Balance to contra	12	3	2			
			ORNITHOLOGICAL FUND:						
			Balance brought forward	100	0	0			
			Interest from Investment	3	0	0			
			Donation	25	0	0			
				128	0	0			
			Less Expenditure	28	0	0			
100	0	0					100	0	0
12	9	6	Subscriptions paid in advance				39	0	0
	—		Suspense Account				15	15	0
	—		Owing to Treasurer				0	9	4
£1042	16	8					£1041	1	11

NATURALISTS' UNION

EXPENDITURE ACCOUNT

October 31, 1959

1958 £ s. d.	EXPENDITURE	£ s. d.	£ s. d.
	GENERAL PRINTING:		
28 18 2	Members' Cards	29 7 9	
72 10 8	Circulars	75 17 4	
34 4 11	List of Members	—	
15 9 4	Sundries	—	
151 3 1		105 5 1	
6 8 8	*Less* Contributions	—	
144 14 5			105 5 1
	The Naturalist:		
357 8 5	Members' and Exchange Copies	387 19 1	
31 17 7	Extra Pages and Illustrations	5 7 8	
7 6 3	Editor's Expenses	6 0 0	
396 12 3		399 6 9	
17 16 3	*Less* Contributions	—	
0 9 0	,, Received for Old Copies	—	
378 7 0			399 6 9
14 4 6	Officers' Expenses		16 16 7
10 5 4	Sundry Expenses		9 12 0
—	Excess of Income over Expenditure		61 19 2
£547 11 3			£592 19 7

October 31, 1959

1958 £ s. d.	INVESTMENTS (Nominal Value):	£ s. d.	£ s. d
	Booth Fund—3½% Conversion Stock	100 0 0	
	Cheeseman Fund—3½% War Stock	100 0 0	
	Nicholas Fund—3% British Transport	100 0 0	
	General Fund—4% Consols (Bank of England)	200 0 0	
	,, ,, 4% Consols (P.O.)	159 10 11	
		659 10 11	
	Less Reserve for Depreciation	175 0 0	
484 10 11			*484 10 11
290 1 1	Deposit Account—Westminster Bank		397 2 11
267 6 8	Current Account—Westminster Bank		126 4 11
—	Loan to Mycological Fund (Contra)		12 3 2
	Subscriptions Unpaid	26 0 0	
0 18 0	*Less* Reserve Bad Debts	5 0 0	
			21 0 0
£1042 16 8			£1041 1 11

*Note: Market Value £492 approx.

YORKSHIRE NATURALISTS' UNION

INCOME AND EXPENDITURE ACCOUNT

Year ending October 31, 1959

1958	INCOME			1959		
£ s. d.				£ s. d.		
445 18 6	Subscriptions Received and Due			507 11 4		
19 13 5	Sale of Mycological Papers, Russula, etc.			7 9 6		
16 6 3	Sale of Other Publications			5 11 2		
33 3 6	Interest—General Fund			28 9 4		
30 10 2	Donations—General Fund			15 14 6		
—	Income Tax Recovered			28 3 9		
1 19 5	Excess of Expenditure over Income			—		
£547 11 7				£592 19 7		

BALANCE SHEET

October 31, 1959

1958				1959		
£ s. d.		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
	ACCUMULATED FUNDS—GENERAL:					
100 0 0	Booth Fund	100 0 0				
100 0 0	Cheeseman Fund	100 0 0				
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450 0 0						
	LIFE MEMBERS' ACCOUNT (brought forward)	477 0 0				
	Less Transfer Income and Expenditure Account	297 0 0				
	Less Transfer Subscriptions Account	15 0 0				
477 0 0			165 0 0			
	INCOME AND EXPENDITURE ACCOUNT:					
	Transfer from Life Members' Account	297 0 0				
	Excess Income over Expenditure for year	61 19 2				
		358 19 2				
927 0 0						
188 1 7	*Less* Balance brought forward	188 1 7				
			170 17 7			
738 18 5						
	MYCOLOGICAL FUND:					
	Balance brought forward...	191 8 9				
	Donation	20 0 0				
	Sales	25 18 4				
		237 7 1				
	Less Cost of Cortinarius, Pt. II	249 10 3				
191 8 9	Balance to contra	12 3 2				
	ORNITHOLOGICAL FUND:					
	Balance brought forward	100 0 0				
	Interest from Investment	3 0 0				
	Donation	25 0 0				
		128 0 0				
	Less Expenditure	28 0 0				
100 0 0				100 0 0		
12 9 6	Subscriptions paid in advance			39 0 0		
—	Suspense Account			15 15 0		
—	Owing to Treasurer			0 9 4		
£1042 16 8				£1041 1 11		

NATURALISTS' UNION

EXPENDITURE ACCOUNT

October 31, 1959

1958	EXPENDITURE			1959		
£ s. d.		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
	GENERAL PRINTING:					
28 18 2	Members' Cards	29 7 9				
72 10 8	Circulars	75 17 4				
34 1 11	List of Members	—				
15 9 4	Sundries	—				
		105 5 1				
151 5 1						
6 8 8	*Less* Contributions	—				
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7 6 3	Editor's Expenses	6 0 0				
		399 6 9				
396 12 3						
17 3	*Less* Contributions	—				
0 4 0	„ Received for Old Copies	—				
			399 6 9			
378 7 0						
14 4 6	Officers' Expenses			16 16 7		
10 4 4	Sundry Expenses			9 12 0		
—	Excess of Income over Expenditure			61 19 2		
£547 11 7				£592 19 7		

BALANCE SHEET

October 31, 1959

1958				1959		
£ s. d.		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
	INVESTMENTS (Nominal Value):					
	Booth Fund—3½% Conversion Stock	100 0 0				
	Cheeseman Fund—3½% War Stock	100 0 0				
	Nicholas Fund—3% British Transport	100 0 0				
	General Fund—4% Consols (Bank of England)	200 0 0				
	„ „ 4% Consols (P.O.)	159 10 11				
		659 10 11				
	Less Reserve for Depreciation	175 0 0				
484 10 11				*484 10 11		
200 0 1	Deposit Account—Westminster Bank			397 2 11		
267 16 8	Current Account—Westminster Bank			126 4 11		
	Loan to Mycological Fund (Contra)			12 3 2		
	Subscriptions Unpaid	26 0 0				
0 13 0	*Less* Reserve Bad Debts	5 0 0				
			21 0 0			
£1042 16 8				£1041 1 11		

*Note: Market Value £492 approx.

Fossombronia pusilla (L.) Dum. (64) Near Arthington; G.A.S.
F. wondraczekii (Corda) Dum. (64) Swinsty reservoir; W. A. Sledge.
†*Lophozia longidens* (Lindb.) Macoun (65) On Junipers, Cronkley Fell; (*Trans. B.B.S.*, vol. 3, part 4).
L. bicrenata (Schmid.) Dum. (65) Rocks near Dineholme Scar; (*Trans. B.B.S.*, vol. 3, part 4).
†*Barbilophozia hatcheri* (Evans) Loeske (65) Rocks near Dineholme Scar; (*Trans. B.B.S.*, vol. 3, part 4).
**Marsupella ustulata* (Hub.) Spr. (65) Cronkley Scar; (*Trans. B.B.S.*, vol. 3, part 4).

Mycology (Miss J. Grainger): There was only a small attendance at the spring foray at Pateley Bridge but as the report of the meeting (*Naturalist*, 140-141, 1959) indicates, some interesting species were found during the weekend. The exceptionally dry summer and autumn was not conducive to the development of the larger fungi and by comparison with our usual experience during autumn forays specimens of agarics were very few and far between. An outstanding event of the Thornton-le-Dale meeting was the Chairman's Address on which Miss E. M. Blackwell has commented: ' The Mycological Committee at their Annual Meeting had the unique experience of hearing the Chairman, Dr. W. D. Hincks, speak as a mycologist and an entomologist on the Laboulbeniales, an aberrant group of parasitic fungi whose habitat consists for the most part of the exoskeleton of beetles. One wonders how many naturalists could speak with equal authority both on the fungi and on their beetle hosts.' Specimens of many species of this little known group, collected and mounted by Dr. Hincks, were exhibited at the meeting and a volume of Roland Thaxter's monograph was displayed.

BOOK REVIEWS

A Guide to the Study of Lichens, by **Ursula K. Duncan.** Pp. xxvii+164 with 19 photographic plates. Buncle and Co., Arbroath, 1959. 25/-.

Lichens probably attract fewer systematic botanists than any other group of land plants. One of the reasons for this is the meagre supply of literature suitable for the beginner, and Miss Duncan's aim has been to supply such an introduction to lichen taxonomy.

Following a brief introduction dealing with structure, microscopic examination, equipment and ecology, keys are provided to the orders, families and genera of British lichens. The systematic account consists of family and generic descriptions followed by a reasonably detailed description of one species in each genus with very brief descriptions and distribution data for the remaining species. This may be adequate for small genera, but the beginner is likely to be discouraged in the larger ones such as *Cladonia*, *Lecidea* and *Lecanora* where several pages of small type with not even a new paragraph allotted to each species, give a degree of compression and condensation which confers a somewhat arid and forbidding look on the book. Some attempt should surely have been made at least to break down these more difficult genera into blocks of species based on common characters even if keys could not be worked out to all the species. Drawings also would have greatly increased the attractiveness and value of the work for though the photographs are good their restricted number limits their usefulness.

This book will need to be well tested before one can judge how far it has succeeded in its aim; but one cannot escape the impression that Miss Duncan is a guide who knows the way better than she knows how to invite others to follow her.

W.A.S.

The Arctic Year, by **Peter Freuchen** and **Finn Salomonsen.** Pp. 440, with numerous maps and drawings. Jonathan Cape, London, 1959. 28/-.

To those who are familiar with the separate works of Freuchen and Salomonsen, this collaboration will hold out a promise which is most fully justified in the realisation.

In the high Arctic, more than anywhere else in the world, mankind is fitted essentially and completely into the ecology of the animal kingdom. He produces no crops and is so completely nomadic that he creates no lesser biota on his own account. He is wholly predatory and thus wholly dependent upon the fortunes and vagaries of the animals which form his food supply. Thus, the story of the one is incomplete without the other and it is in this way that the joint work of one of the most experienced of arctic sojourners and the undoubted prince of arctic naturalists is so important and so successful. It may be said here that it is not possible to discover any separate authorship. Translation from the presumably Danish original is not acknowledged but it has been most featly done.

The treatment is a monthly one, beginning in January in the full depth of the winter but in which, contrary to general supposition, there is enough light to move around, and so in progression through the year, treating not only of the changes, the comings and goings, the shift sand devisals, but also of the adaptations and specialisations which enable animals in particular to survive the strictures of arctic life and to exploit its bounties.

The book has its surprises, not the least of which is that although such plants as Roseroot and Lousewort are used as potherbs by the Eskimos, none of the tribes utilise the Scurvy Grass, so highly prized by mariners and early explorers.

A work by such authorities brooks no criticism and I have none to offer. Its easy, fluent style camouflages a mine of fact and valid theory upon which I for one shall draw upon for many years to come. There is something for everyone in this account of life on the threshold of existence.

A.H.

The Principles of Humane Experimental Technique, by **W. M. S. Russell** and **R. L. Burch.** Pp. xiv+238 with diagrams and text figures. Methuen, London, 1959. 30/-.

This is a work which all should welcome although its incidence will be confined to those experimental workers who must at present utilise animals of one sort or another in the search for new therapeutics, for the causation of disease and for the actual production of the hormones and enzymes which ameliorate our existence at times of physiological breakdown. While we acknowledge the miraculous work of Banting and Salk and while we all look forward to the banishment of the cancerous growths which will inevitably kill a proportion of us unpleasantly, yet there must remain a consideration of conscience concerning the vast number of warm-blooded animals, many millions annually, which are used for bioassay, diagnosis, research and anti-serum production.

The authors were engaged by the Universities Federation for Animal Welfare to survey the problem and their report, together with a series of tabulated addenda, forms the basis of the present book. In the main the problem is broken down into three, not necessarily discrete, components. Firstly by the replacement of living animals by such alternatives as tissue cultures *in vitro* and the use of micro-organisms, both of which have economic as well as humanitarian advantages; secondly by reduction of the number of animals employed, either by a fuller application of statistics or in some cases by the substitution of one large animal for many small ones, and finally by a refinement of method which makes for more economical animal utilisation.

There is no doubt that animals kept for experimental purposes are maintained in a high state of husbandry and a point which is overlooked by the anti-vivisectionists is that a considerable number of experimental animals are utilised in the interests of their own species, over 75% of the dogs being used in the production of canine distemper prophylactics and research into other canine infectious diseases. Finally, we may rest assured that the contingent inhumanity visited upon experimental animals is no greater than that upon animals kept for the owners' pleasure and that the constant effort to reduce it has the drive, not only of compassion, but of economics.

A.H.

Land and Water Bugs of the British Isles, by **T. R. E. Southwood** and **D. Leston.** 32 coloured plates by H. D. Swain, 31 black and white plates and 153 text figures by P. Entwistle, H. M. Entwistle and the authors. *Wayside and Woodland* Series. F. Warne, London, 1959. 30/-.

The bugs of the Heteroptera are an order that one can now recommend for study to any would-be entomologist. The 509 British species are found in a wide range of habitats, they are easy to collect and preserve, and at all times of the year adults of some species occur. This book, the first on the identification of the British Heteroptera since 1892, is a reliable guide to their identification and a survey of our present knowledge of their natural history. The authors are two of our foremost workers in the order. It is suitable for the beginner, who will be pleased by the number of illustrations, and at the same time is a work that must now be regarded as the standard British handbook and one that will be used by all competent entomologists.

It is provided with very good artificial keys down to species and these are generally straightforward and not difficult to follow. The beginner will certainly run into difficulties when he gets to the Miridae, however, and will be well advised to get some idea of this family by comparing his specimens with the plates. The keys are not supplemented by descriptions but adequate figures illustrate the critical features mentioned. Great care has obviously been taken with these figures, and the plates, both coloured and black and white, are excellent in execution and reproduction. Half-tone reproduction in colour is not always successful, but here it is, and the delicate tones of the Miridae, among others, have been caught beautifully: 295 adults are depicted, 189 in colour.

A brief description of the range, habitat and life history is given for each species so far as this is known and an extensive list of literature cited follows each family (112 reference follow the Miridae). This aspect of the book is most stimulating and should prove both a help to the collector and an indication of suitable lines for further investigation. The information on distribution is up-to-date, but some published Yorkshire records have been overlooked. *Cymatia coleoptrata* (F.) and *Notonecta marmorea* F. both occur in the county and these records considerably extend the known range of these species. A brief appendix gives information on the techniques of collecting, preserving and identifying. The book has been carefully produced and the writer has so far noticed only one slip. In the key to the Cimicidae bracket 9 should lead to 10 or 14, not 10 or 11. An attempt has been made to provide common names for some species and this is probably a mistake. A useful feature is the index of plants which refers to the bugs that are to be found on them. There are some changes of names and the classification follows the latest ideas.

The authors are to be congratulated on a first-class piece of work, packed with just the sort of information that the practising entomologist requires and with no padding whatsoever. The student of the Heteroptera will find his work greatly facilitated by this book which is a notable addition to a most useful series.

J.H.F.

The Science of Biology, by **Paul B. Weisz.** Pp. 796 with 718 illustrations and 17 tables. McGraw-Hill Book Company, Inc., 1959. 62/-.

This book represents a quite unusually successful attempt to produce a genuinely integrated biological text. The tendency to treat botany and zoology under separate headings, with a few chapters on matters of common concern, is replaced by an introduction on the nature of science, followed by groups of chapters on the living world, the living substance, metabolism, the steady state, reproduction and adaptation. Each chapter has a short bibliography for more extended reading, and the book ends with a useful glossary. An unusual amount of physiology and biochemistry is included, and a most helpful feature is the interpolation of succinct accounts of the chemical background necessary for the understanding of the processes to be described. As an ordinary university text-book in this country two features might limit its usefulness; it covers a great deal of ground and the book does not in itself contain sufficient of the structural detail necessary to appreciate some of the questions discussed. As ancillary reading for both elementary and advanced students however the volume can be heartily recommended. The slightly unusual shape may not be to the taste of everyone, but the production of the book and its illustrations are worthy of the admirably clear style of writing of the author.

T.K.

Comparative Endocrinology. Editor **Aubrey Gorbman.** Pp. x + 736 with 234 illustrations. Chapman & Hall, 1959. 120/-.

Endocrinology, from modest beginnings at the turn of the century, has now become a science dealing with fundamental problems of both medicine and biology covering wide fields of research and absorbing the time and labours of hundreds of workers. This book deals with biological aspects of the subject and is a survey of recent developments in comparative endocrinology. It records the proceedings of a symposium at Columbia University in May, 1958, when papers and discussions by specialists gave ample indication of the importance of the endocrine system in adjustments made by animals to their environment and even in their evolution. This is essentially a book by experts for experts, although it deals with many problems of great interest to naturalists such as the regulation of migration and reproductive cycles in relation to feeding and breeding in both birds and fishes, behaviour and behaviour patterns, the control of colour change and finally endocrine factors in relation to ecological and internal adaptation.

E.A.S.

The Birds, by **Oskar and Katherine Heinroth,** English edition prepared by Michael Cullen. Pp. 175, Faber and Faber, 18/- net.

Formerly Curator of the Berlin Zoo, Heinroth wrote this book in 1938 and died in 1945, after he and his wife had prepared a second edition (published in 1954), on which latter the present translation by Michael Cullen, modified somewhat, is based. Summarily, selectively and briefly in simple English, a wide field is covered ranging from breeding and feeding habits of many avian types to the uses of their senses, mental and navigational powers, and of communication with their kinds. Heinroth combined unusually the experiences of a field-naturalist with detailed knowledge of behaviour of hundreds of species in captivity, as shown in the three volumes of his great work *Die Vögel Mitteleuropas. The Birds,* although written primarily for the interested layman, is also useful to the specialist in particular problems. Did you know that a Raven can weigh 40 times as much as its clutch of eggs, whilst the 4 eggs of a Common Sandpiper, and of some other waders, can weigh more than the bird that produced them; and this before incubation has begun?

R.C.

The Young Bird Watchers, by **A. F. C. Hillstead.** Pp. 206, with 12 plates and 9 line illustrations. Faber and Faber, London, 1959. 15/-.

This is a new edition, differing from the original of 1948 only in an enlarged epilogue and in the addition of some new photographs. It is a useful and stimulating guide for young people who are beginning to study, rather than just watch birds. The story-form and the 'handbook of instructions' occasionally make uneasy partners, especially when what is intended as dialogue 'sounds very much like a lecture'.

It is a pity when publishing a new edition not to have corrected one or two misleading statements. We are told, for instance, that in the north of England bullfinches are brighter and larger and given the name *Pyrrhula pyrrhula pyrrhula*; that the hedge sparrow has the habit of skulking about at the foot of hedges and this has given rise to the local name of 'shufflewing'. It is to be hoped that no young bird-watchers will be led to Duncansby Head for the express purpose of seeing Choughs.

There is a useful bibliography and the new epilogue poses a lot of problems which will give purpose to the observations of the young bird-watchers who read this book. It should be on the shelves of every school library.

R.F.D.

Welcome the Birds, by **Esme Stewart.** Pp. 110, with 14 photographs. Hurst & Blackett, London. 15/-.

This is a slight affair, perhaps classifiable as aviculture, certainly not as ornithology, concerned mainly with birds in captivity or in convalescence, in Europe or in America. The author clearly credits her birds with reasoning powers but little inferior to her own and is uncritical enough to pass on a good deal of vicarious misinformation.

I have tried very hard to discover some vestige of justification for this book and, of course, it may be my fault that it quite eludes me.

A.H.

Wild Life Conservation, by **Ira N. Gabrielson.** Second Edition. Pp. xii+ 244, with 32 half-tone plates and 23 line figures. The Macmillan Co., New York. New York and London, 1959. 38/6.

This book, though hitherto little known in Britain, may be welcomed as a new edition of a standard work by a well-known American authority. First published in 1941, it has been thoroughly revised and brought up-to-date, particularly by the addition of new figures, and an extra chapter on wild-life conservation in agricultural lands.

The North American conception of nature conservation regards all wild life as a natural resource to be used and conserved for the benefit of the human population. Dr. Gabrielson thus emphasises the two aspects of the problem—that the ' cropping ' of any species must not exceed the amount of annual increase of the population, and that along with this, experience has shown that the best way to maintain a native animal population is to maintain and conserve the habitats it uses. The treatment thus envisages wild life conservation as an integral part of every sort of land use, but says little about special forms of conservation such as natural parks and nature reserves.

Dr. Gabrielson writes well and easily so that this is a good book as well as a valuable summary of the North American outlook and methods.

W.H.P.

Geology of the Country around Bridport and Yeovil, by **V. Wilson, F. B. A. Welch, J, A. Robbie** and **G. W. Green.** Pp. 239 with 7 plates and 27 text figures. *Mem. Geol. Survey Great Britian.* H. M. Stationery Office. 1958. 13/-.

Although this area, covered by Sheets 327 and 312 of the 1-inch geological maps, contains many classic sections, it has not previously received the comprehensive treatment of a memoir. The district ranges from the well-known coastal sections east of Lyme Regis to the low ground of the valley of the Yeo in the north. Yorkshire readers will be particularly interested in the differences between the Jurassic rocks described in the memoir and those of North-East Yorkshire while the variations in thickness and lithology which many horizons show on crossing the so called Bath Axis will recall similar phenomena on the Market Weighton Axis. The memoir is edited by Dr. Wilson who must be congratulated on the production of an attractive volume which will be a standard of reference to all future workers and to the many geologists who visit this region.

H.C.V.

Metabolism in the Rumen, by **E. F. Annison** and **Dyfed Lewis.** Pp. 184. Methuen's Monographs on Biochemical Subjects, 1959. 15/-.

Metabolic activities in the ruminant stomach have only comparatively recently been intensively studied. This book surveys the principal findings in this field and can be recommended to biochemists, biologists, agricultural scientists and indeed to any who have a scientific curiosity about their food and its origin.

An introductory chapter explains the structure and function of the ruminant stomach, and rumen microbiology is then dealt with, details of individual organisms being given together with outlines of techniques for studying them. With this background, carbohydrate, volatile fatty acid, and nitrogen metabolism, absorption from the rumen, and rumen function and dysfunction are discussed in subsequent chapters. The text is well illustrated with explanatory figures and tables, is commendably free from errata and adequate references are given to facilitate further reading.

Out of Doors, edited by **Winwood Reade.** Pp. 160, with 220 photographs, drawings and diagrams. Rathbone Books Ltd., 1959. 12/6 net.

The principle limitation of sound and television broadcasting is its ephemeral nature. Young naturalists whose interests and enthusiasms have been quickened by natural history talks will therefore benefit from this more permanent record of talks given by over a dozen contributors to the B.B.C. Television natural history programme for young people. The matter is sound and well balanced in range of topics, and the manner of presentation is well suited to their requirements. The arrangement is designed to show the reader what to look for and how to find it in each month of the year and the articles are well and profusely illustrated. A good gift book for the aspiring young 9-12-year-old naturalist.

The Naturalist

Wanderers of the Field, by **Eileen A. Soper.** Pp. 220, with numerous drawings. Routledge & Kegan Paul, London, 1959. 25/-.

Once again Miss Soper delights with her skilful and animated drawings of birds and mammals, accompanied by a commentary which is signalised by acute and accurate observation. The minutiae of badger-watching, of the sustained observations of the nesting of several common birds in her garden sanctuary, of squirrels, field mice and other small animals are all painstakingly recorded. Her warm and humane approach overlies a great deal that, by itself, is of great statistical interest and her recording is so meticulous that any student of behaviour can utilise it as freely as anything drawn directly from his own experience, although strict interpretation might well depart from some of the author's anthropocentric phraseology.

Miss Soper inveighs, with reason, against the present vogue for the uprooting of hedges and the thoughtless eradication of cover which harbours the small creatures which delight her, but the keynote of all her work is pure enjoyment.

E.H.

Familiar Animals of America, by **Will Barker.** Pp. 302, with 60 plates and numerous text illustrations. Museum Press, London, 1959. 35/-.

This beautifully produced work concerns itself with the life histories of sixty of the more familiar American mammals, reptiles and amphibians. It is written in an easy, discursive style but the matter is accurate and frequently documented. The apparent aim of the book is to capture the interest of the general reader and to emphasise that even in the commonplace there is still a wealth of fascination and a great ignorance. Here is wisdom indeed, for it is in the creatures which are ready to hand that we can explore those mysteries which still elude us.

This is no book for the parochially minded but for those whose interest is in animals wherever they may be found. I recommend it and the drawings by Carl Burger are a sheer delight.

E.H.

Taming and Handling Animals, by **Maxwell Knight.** Pp. 126 with 20 plates. G. Bell & Sons, London, 1959. 12/-.

Although mankind has hunted for so long that any animal which has regular acquaintances with human flees them as the plague, yet there remains in all of us a nostalgia for the companionship of animals and some sort of pet is a commonplace adjunct to the home. Maxwell Knight's book is addressed to children, whose penchant for animal companionship often embraces creatures other than the familiar cat and dog and he is concerned not only with details of the care and maintenance of animals of all kinds but especially with creating an understanding of animal responses which will enable pet owners to be on the best of terms with their charges. The advice is given in a simple and sensible manner and in addition to the main thread of his discourse there are many asides which are good straightforward natural history offered in a very assimilable way. A good present for the young teenager.

E.H.

Photograms of the Year, 1960: The Annual Review of the World's Photographic Art. Published for *Amateur Photographer* on October 30th, 1959, by Iliffe & Sons, Ltd. Pp. 136, including 104 plates—8 in full colour. $10\frac{3}{4}'' \times 8\frac{1}{2}''$. 18/6 net (postage 1/9).

Each year *Photograms* provides a record of the finest contemporary photographic work selected from an international field. Apart from the technical appeal of the pictures to photographers of all cadres from the aspiring amateur to the experienced professional, one of its greatest merits is the range of its contents. Artistic portraiture and traditional pictorial photography, originality of design and composition, pictures which arrest the viewer by their emotional impact, their vitality or their powerful dramatic value—all are represented in this collection. Many are flawless in their technique; a few rely more on tricks of presentation than on intrinsic merit. But each in its different way acts as a yardstick against which the practising photographer may measure his own work; while for those who are not interested in technical cunning the aesthetic appeal is there in full measure for their enjoyment.

The volume includes an article on colour photography as well as the customary review of the year's photographic work at home and abroad, and the critical comments on each of the chosen pictures.

Sir Joseph Banks in New Zealand. Edited by **W. P. Morrell.** Pp. 159. A. H. & A. W. Reed, Wellington; agents Bailey Bros. & Swinfen Ltd., London. 21/-.

This volume comprises the full text of Sir Joseph Banks' journal for that period of Captain Cook's first voyage of exploration when his ship *Endeavour* was in New Zealand waters, including also Banks' subsequent ' Account of New Zealand '.

Banks' journal has never yet been published in unadbridged form and therefore, considered on the basis of its textual material alone, this book is a valuable contribution to the literature of New Zealand exploration. Both the daily journal and the Account are competently annotated, Professor Morrell having wisely taken full advantage of the advice available to him from authorities in different fields of study. There is also an introduction by Professor Morrell which is excellently done, and provides exactly that background information concerning both Banks and the voyage of the *Endeavour* which most readers will require in order fully to appreciate the text of the journal. There are a number of plates, very varied in character, but excellently chosen in relation to the subject matter. Cook's map of New Zealand is included, but the reviewer is sure that the insertion of a modern map of New Zealand as well would have been a useful convenience. The lack of a collected bibliography is also to be regretted.

This book will obviously be more readily appreciated by those with some personal knowledge of New Zealand and its natural history. However, Banks was clearly an observer of acute perception, and the average reader, once familiar with the style in which the journal is written, will surely recognise the peculiar interest of the subject matter. Not least, one cannot fail to be impressed by the extreme hazards associated with these early explorations, and the apparently casual fashion in which these dangers were accepted by Banks and his contemporaries. Biological expeditions to-day, however venturesome, must seem safe and sound enterprises by comparison.

J.D.L.

Film Strips: Grasses, 27 frames in colour (No. CX 6332), 27/6. **Seed Germination,** 23 frames in colour (No. CX 6290), 27/6. **Insects in the Garden,** 28 frames in monochrome (No. 5260), 16/6. **Resident British Birds,** 33 frames in colour (No. CX 6208), 27/6. With notes to each, published by Educational Productions Ltd., East Ardsley, Yorks.

Grasses. The identification of grasses seems to terrify the young naturalist and anything which may help to dispel this fixed idea of their difficulty should be much appreciated. This film strip does help to a great extent, by presenting a variety of the common grasses from a wide range of ecological habitats, as well as emphasising their common characteristics. In some frames the lack of contrast between the plant and its background robs the illustrations of some of their usefulness, as the features which would help in identification are not easily visible.

Seed Germination. This is a very good film strip which presents a wide picture of germination, for although it inevitably includes the broad bean it also shows several types which may not be so familiar. The photography is excellent, and the notes supplied with the strip could easily be adapted for use with any age group. The chief features of germination are well illustrated and clearly presented so that they are likely to be retained.

Insects in the Garden. The emphais in this strip is naturally on the insects rather than the garden. Presumably therefore it is intended to familiarise the audience with the species they are likely to meet so that they may readily identify them. On these grounds then, it seems that a strip in colour would have been more successful, saving a great deal of time on description, and bringing the insects to life. The presentation of the specimens in small rectangles, two to a frame, may help to shorten the length of the film, but it increases the feeling of artificiality, and loses much of the value. A little more emphasis on the effect of the insects in the garden, both in the notes and the pictures would have been advisable.

Resident British Birds. Birds are difficult to observe in the field, due to their timidity and speed of movement. There is therefore a genuine need for film strips of this kind, which, due to photography of an exceptionally high standard, present them very naturally, in an easily observable form. There is a commendable emphasis on the common birds, with an occasional rarity to stimulate interest. The notes are full and the information so varied that the strip could be used not only in school, but with any group with a mutual interest in the birds which are so familiar that they are often ignored.

M.S.H.

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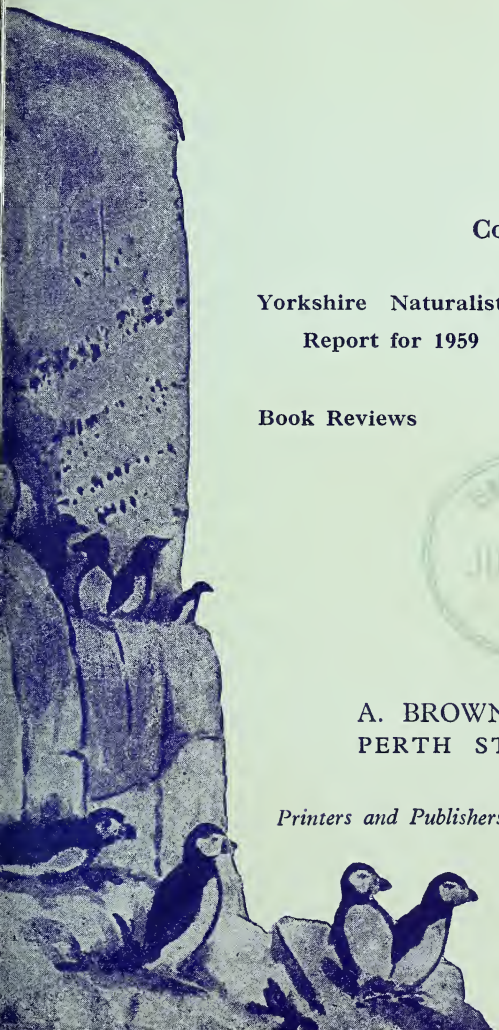

Contents

PAGE

Yorkshire Naturalists' Union: Ornithological Report for 1959 37-79

Book Reviews 80

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YORKSHIRE NATURALISTS' UNION
ORNITHOLOGICAL SECTION, 1959

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York District: E. W. Taylor, C.B.E., F.R.S., D.Sc.
Spurn Bird Observatory: *Hon. Secretary:* G. H. Ainsworth, 144 Gillshill Road, Hull.
General Editor: Ralph Chislett.

Report for 1959

Snow lay widespread over the county from January 7th to 17th. Some places had twenty degrees of frost on the 10th. An incomplete thaw was followed by more snow from January 22nd, and the ground was hard until mid-February. The first mild, sunny day came on February 17th, when Dippers at Sedbergh began to build. With the thaw immense numbers of duck, gulls, Lapwing, etc., gathered in February to March about the flooded ings of the Derwent Valley. Some Spring migrants were unusually early. Westerly gales blew on April 5th and 6th, and the month was wetter than average. A dry summer followed, with several periods of drought, until mid-October. By midsummer, reservoirs had unusually large expanses of mud which made 'the finest autumn' for waders inland for some years, with twenty species noted in the Halifax-Huddersfield area (R.Cr.). Coastal passage of passerines was spread over the long dry period from July, during most of which easterly winds prevailed, with few concentrations into short periods until October, when Goldcrest and finches came in abnormal numbers, and Wood-Pigeons in November at Spurn.

The usual meetings in March and October were well attended. The Union's summer field meetings provided opportunities for extending our knowledge of ecological distribution. An additional meeting was held at the Ravensknowle Museum, Huddersfield, where several young men gave short papers on the results of aspects of field work. The R.S.P.B. film, 'Highland Birds', attracted a large audience to the Leeds University Lecture Hall in November. The purchase of the Spurn peninsula in April by the Yorkshire Naturalists' Trust Ltd., towards which many members subscribed, was an event of major importance.

The number of birds ringed up to September 30th was more than doubled in the last three months, and the total of 5,857 was 1,211 more than last year's record total. New species ringed were: Knot, Curlew Sandpiper, Bearded Tit and Hawfinch. Numbers ringed of Song-Thrush, Redwing, Robin, Goldcrest, Chaffinch, Brambling, and especially Greenfinch and House-Sparrow, were all very substantially higher than in 1958; warblers, flycatchers and linnets were fewer, especially Willow-Warblers. Blackbirds although slightly fewer, remained at the high figure of 513, and Snow-Buntings were slightly higher at 447. Capture of such large numbers of finches and buntings was enabled by use of seed for bait, generously supplied by Mr. G. Bird and his friends.

Turning to rarities, highly interesting but not the most likely to be recovered: three Wrynecks were ringed, two Bluethroats, two Icterines, six Bearded Tits, four Barred-Warblers and eleven Red-breasted Flycatchers (ranging from September 4th to October 17th).

The larger numbers ringed of Song-Thrush and Redwing, Robin and Goldcrest, reflect the larger movements of those species, to which reference will be found hereafter. The dates and places of the ringed birds recovered supply proved facts for consideration and are also to be found hereafter. Special mention should perhaps be made of the Hedge-Sparrow recovered in Germany in winter; of the Snow-Bunting found dead under telegraph wires in Iceland; of the Water-Rail in Germany; and of the Wryneck killed by a hawk in Sweden as far north as 66° 56′ N., our second passage Wryneck to be recovered in Northern Sweden.

The Observatory was manned on 237 days: 54 in January to March, 45 in April and May, 18 in June and July, 99 from August 1st to November 9th, and on 21

SMITHSONIAN INSTITUTION MAY 2 0 1960

The Spurn Bird Observatory
(G.H.A. and R.C.)
Ringings of the Spurn Bird Observatory

	In 1959	Total to 31/12/59
Slavonian Grebe		1
Storm Petrel		1
Fulmar		1
Shag		1
Mallard		1
Scaup		1
Long-tailed Duck		1
Common Scoter		1
Sheld-Duck		2
Sparrow-Hawk	1	21
Merlin		2
Kestrel	2	20
Red-legged Partridge		28
Partridge	1	7
Pheasant		2
Corncrake		1
Water-Rail	3	10
Moorhen		13
Oystercatcher		4
Lapwing		11
Ringed Plover	5	111
Turnstone	2	3
Snipe	1	4
Jack Snipe		1
Woodcock		6
Green Sandpiper		1
Wood Sandpiper		1
Redshank		16
Knot	2	2
Dunlin	11	96
Curlew-Sandpiper	2	2
Common Gull		6
Little Tern		77
Razorbill		2
Little Auk		1
Guillemot		9
Puffin		2
Wood-Pigeon	1	3
Turtle-Dove		2
Cuckoo	7	110
Little Owl		5
Tawny Owl		1
Long-eared Owl		5
Short-eared Owl		1
Swift		3
Hoopoe		1
Great-Spotted Woodpecker		4
Wryneck	3	30
Short-toed Lark		1
Skylark	25	222
Swallow	28	360
House-Martin		2
Sand-Martin		36
Carrion Crow		3
Rook	2	6
Jackdaw	1	10
Magpie	2	20
Jay		1
Great-Tit	20	100
Blue-Tit	26	288
Coal-Tit		61
Willow-Tit	1	3
Long-tailed Tit		3
Bearded Tit	6	6
Tree-Creeper		3
Wren	44	320
Carried forward	196	2079

	In 1959	Total to 31/12/59
Total forward	196	2079
Mistle-Thrush	2	5
Fieldfare	1	45
Song-Thrush	187	804
Redwing	81	270
Ring-Ousel	1	14
Blackbird	513	3878
Wheatear	17	162
Stonechat	3	37
Whinchat	30	218
Redstart	88	767
Black Redstart	3	44
Nightingale		7
Bluethroat	2	14
Robin	213	1432
Grasshopper-Warbler	1	3
Reed-Warbler	1	13
Sedge-Warbler	9	172
Icterine Warbler	2	9
Blackcap	29	106
Barred Warbler	4	17
Garden-Warbler	39	269
Whitethroat	107	1431
Lesser Whitethroat	4	73
Willow-Warbler	62	1646
Greenish Warbler		1
Chiffchaff	21	109
Wood-Warbler	1	15
Yellow-browed Warbler		5
Goldcrest	270	575
Spotted Flycatcher	9	155
Pied Flycatcher	80	701
Red-breasted Flycatcher	11	21
Hedge-Sparrow	127	771
Meadow-Pipit	37	883
Richard's Pipit		1
Tree-Pipit		28
Rock-Pipit		6
Pied Wagtail		2
White Wagtail		1
Yellow Wagtail		7
Waxwing		1
Great Grey Shrike		7
Woodchat Shrike		1
Red-backed Shrike	2	10
Starling	130	1110
Hawfinch	1	1
Greenfinch	892	2725
Goldfinch	2	36
Siskin	9	14
Linnet	196	3194
Redpoll, Lesser		10
Redpoll, Mealy		9
Bullfinch		2
Scarlet Grosbeak		1
Crossbill		6
Chaffinch	536	2237
Brambling	304	684
Yellowhammer	10	104
Corn-Bunting	5	28
Red-headed Bunting		1
Ortolan Bunting		1
Reed-Bunting	79	673
Lapland Bunting		1
Snow-Bunting	447	1775
House-Sparrow	1053	3797
Tree-Sparrow	40	81
Total	5857	33305

days after. The blank periods in April and May were regrettable. July had poor coverage although the beginnings of the autumn movement are very interesting to watch. On the other hand, all weekends were fine, and people flooded the peninsula. A Warden will be in residence in 1960; may we hope for volunteers to help him patrol the approaches to the beaches where the Little Terns and Ringed Plovers breed. It is important that bird-watchers should set a good example to visitors and themselves keep away from the actual nesting areas.

Visitors to the Spurn peninsula during the year have also included many individuals and parties from inland towns with special interests in the flora and fauna. One coach brought members of the Zoology Section of the British Association during the course of its meetings at York in September. The Geographical and Botanical Departments of Hull University are studying aspects of the peninsula in which they are especially interested. Thanks are due to many people for help of various kinds, for gifts of furniture, of cloth for blankets, and for a variety of services. Mr. J. R. P. Clubley has kept a watchful eye over the peninsula throughout the year in the interests of the Observatory and of the Yorkshire Naturalists' Trust Ltd. Three members of the Observatory Committee have accepted some responsibility for management of the promontory under the Y.N.T. Ltd.

BIRDS OF 1959 RINGED AT SPURN IN PREVIOUS YEARS

Re-trapped in 1959		*Ringed in*				
		1958	1957	1956	1955	1951
9	Skylarks	3	5	1	—	—
1	Great-Tit	—	1	—	—	—
2	Blue-Tits	2	—	—	—	—
1	Wren	1	—	—	—	—
2	Song-Thrushes	—	1	—	1	—
5	Blackbirds	4	1	—	—	—
5	Whitethroats	4	1	—	—	—
13	Hedge-Sparrows	12	1	—	—	—
1	Meadow-Pipit	—	1	—	—	—
19	Greenfinches	16	1	1	1	—
45	Linnets	37	4	4	—	—
2	Chaffinches	2	—	—	—	—
3	Yellowhammers	2	—	1	—	—
6	Reed-Buntings	3	2	1	—	—
15	Snow-Buntings	13	1	1	—	—
68	House-Sparrows	19	32	10	6	1
197		118	51	19	8	1

That 1951 House-Sparrow was a very old bird !

It is pleasant to be able to record the growing success of the Fairburn Ings Nature Reserve experiment, in the initiation of which our section of the Y.N.U. played a part. Although not under complete control, most people have now come to regard the ing as a sanctuary for wild life, and to respect it as such. The police have given invaluable support to the voluntary wardens. Birds, including new species for the area, have been quick to appreciate and utilise the greater measure of safety now offered. Several of the wardens are ringers, but have recognised the need for voluntary restraint, knowing that if they are seen working in the reed-beds others will follow. A gullery, too, cannot be searched for nestling gulls to ring without disturbance to other, rarer species that may be nesting among the reeds and need encouragement. Ringers of young gulls elsewhere might take note !

Ringing-traps and mist-nets were operated in many areas in the county. Members of the Harrogate N.S. together ringed *c.* 200 more birds than were ringed at Spurn in the year. All Yorkshire ringing recoveries of importance that reached me are included hereafter under specific headings. Mr. and Mrs. P. A. Rayfield have left Thornaby-on-Tees and hope that someone will continue with the ringing of Starlings (and other species) in that area, with which they have been so successful.

Daybreak at Spurn in autumn saw the beginning of many a protracted watch that usually lasted until passage tapered off; or passage might quicken at mid-day, or later. To publish tables comparing the day-to-day estimates and counts of birds

present or passing along the peninsula, or coming in from sea, is not feasible. The migration season is a long one. Some species arrive, or pass, in the night. If we survey a few of the species whose passage was most spectacularly visible in 1959, excluding such as ducks and divers, we find that Swifts were at their maximum on July 18th, Sand-Martins on August 23rd, Swallows on September 7th, Meadow-Pipits on September 9th and 20th, House-Martins on September 20th, Skylarks on October 3rd, 17th and 20th, Chaffinches from October 6th to 10th, Bramblings on October 12th and 13th, Blackbirds on October 30th, Fieldfares on October 30th and November 15th, Lapwings on November 1st. The passage of each species overlaps with that of others; and the first Fieldfare appeared just before the last Swift passed.

No supporters of the work of the Union undertake more sustained field-work than the group that records migration in action. Some people have even come to see *them* in action. There are numerous other parts of the coast where passage can be watched and counts made; and there are focal points inland, where those who know their birds in flight, in winter or juvenile plumage, and their notes, can do useful work. When considering figures for species passing at Spurn, I have often wished I knew what happened on the same, or preceding, day at Flamborough, Filey Brigg, Ravenscar, Hawsker, Saltwick Nab, Kettleness, Boulby, Hunt Cliff, and Teesmouth. Sometimes I do know what happened at some of those places, but with movements so unpredictable, concerted pre-arranged watching is not so possible, and may be less profitable, than it is with ducks on reservoirs.

For 1960 the section is going over to the five Vice-Counties as geographical areas for collective recording. West Riding contributors have become too many for one man to cope with. Explanatory leaflets have been circulated showing where the boundaries run. Broadly: V.C. 61 is the East Riding; V.C. 62 is the eastern part of the North Riding from the banks of the Swale and Wiske; V.C. 63 is the southern portion of the West Riding as far as the lines of the Aire and the Leeds-Liverpool Canal; V.C. 64 is the remainder of the West Riding, but excluding the area north of Whernside with the Howgill Fells, which with the western part of the North Riding makes up V.C. 65. We are fortunate to have Messrs. J. Cudworth and A. F. G. Walker as Recorders for V.C. 63 and 64 respectively. May I ask everyone to give them their full support.

To maintain and improve this Annual Report has been a main purpose with me for twenty years. Valuable contributions have been made yearly by a large number of people. I thank them all very sincerely.

CLASSIFIED LIST

(B.O.U. Check List (1952) Order. Handbook Numbers behind)

1. Black-throated Diver (378).—A diver seen swimming on the sea and in flight at Spurn on September 8th (C.W.); one close in shore at Flamborough on October 24th (G.R.N., M.D.), and one with Redthroats off Hornsea on December 6th (G.R.B.); were all that could be separated from numerous Redthroats as belonging to this species.

2. Great Northern Diver (376).—A large diver in Scarborough Harbour on July 4th was thought to be this bird (P.Y.). Single birds at Spurn on October 31st and November 1st, and on December 26th belonged to this or the preceding species. A Great Northern Diver flew to Gouthwaite Reservoir on November 22nd at 9 a.m. and stayed until 1-30 p.m., after which it could not be found; it showed traces of breeding plumage (A.F.G.W., D.G.L. and others).

4. Red-throated Diver (379).—Occurred about Spurn from January 1st to April 18th, and one on May 2nd, with maxima of 182 on January 31st, and *c.* 200 on February 1st, up to *c.* 270 on February 20th-21st, and up to *c.* 135 March 14th-15th. *Circa* 50 on April 5th-6th represented the last spring movement. Birds of the two previous species could have been included in any of the movements, but those seen inshore were almost all redthroats. One in a party of *c.* 12 on the sea on March 15th was distinctly larger than the rest. Of 17 in the air together on April 5th, one was either Black-throated or Great Northern.

During these early months a few redthroats occurred on Hornsea Mere; and many passed along the coast; 35 moved northward off Withernsea on March 4th (G.R.B.); and 68 on March 6th (J.C.H.L.). A redthroat that had been on Hornsea Mere from April 18th was caught on June 7th and put on the sea; it was still in winter plumage (G.R.B.). One at Filey was assuming summer plumage on May 18th

(T.M.C.). Divers were frequent at Redcar in small numbers until April 25th (D.R. and P.S.). Three were near Bridlington on January 5th (G.R.N., M.D.); and two in Whitby Harbour on February 28th (T.W.A.W.).

Divers began to re-appear at Spurn on August 27th (three at Redcar on August 30th), in good numbers from September 12th, with maximum of *c.* 70 on September 17th (when 17 passed south at South Gare (E.E.J.)); and continued to be seen throughout the autumn. On December 26th *c.* 250 birds were involved in a concentrated movement northward—223 flew past the Narrow Neck in eight minutes. On the 27th 155 flew north between 14.00 and 15.15 hours (C.W., R.C.P., J.S.A.) Some of these birds were possibly included in the 231 counted off Hornsea on December 21st. *Circa* 50 were on the sea off Atwick on December 28th (G.R.B.). Odd redthroats appeared on Hornsea Mere from November 22nd.

Inland occurrences were: one at Blackmoorfoot Reservoir on November 22nd (A.N.S.); and one at Hoyle Mill Dam, Hemsworth, on December 26th (M.N.R.).

5. Great Crested Grebe (370).—Reported from 32 waters; young were produced on at least twelve; and on several others attempts to breed were unsuccessful, due to falling waters and/or interference. As usual the Fairburn area showed the largest numbers, with Hornsea Mere and Swillington Ing good seconds. Some waters such as Eccup Reservoir seem to be mainly calling-places for birds passing; and others are particularly so. Broods of more than one or two were very exceptional in the summer which was not surprising considering the drought.

A few adults occurred in winter—January 4th at Wintersett (D.S., J.S.A.). The newly-filled Tophill Low Reservoir (R. Hull) showed six on September 13th and twelve on November 15th (H.O.B.). A few Great Crested Grebes were recorded on the sea on many dates from February 1st to May 3rd and from July 26th to December, at places ranging from Teesmouth down to the coast to Spurn; with six as maximum on April 11th and November 8th, both off Atwick (G.R.B.).

6. Red-necked Grebe (371).—One was assuming summer plumage in South Bay, Scarborough, on April 26th (T.M.C.). A grebe on Blackmoorfoot Reservoir on November 21st and for some days later was considered this species (O. White, L. Taylor, C. Disbrey).

7. Slavonian Grebe (373).—Recorded at Swinsty Reservoir on March 15th (W.F.F., O.M.P.), off South Gare on September 27th (F. Cooke) and at Fairburn on December 12th (R.F.D.).

8.—Black-necked Grebe (374).—Two were reported at Fairburn on July 25th (A.F.); and on November 28th (R. Wilby). Scaling Dam showed one on October 25th (J.H., A.J.V., I.McK.). One occurred near Finningley from November 21st to December 5th; and two at Southfield Reservoir on December 12th (A.E.P., J.B.). Three were on Mickletown Flash on December 12th (A.F.). R. S. Pollard watched one at Cloughton Wyke in November. Two were at Blackmoorfoot Reservoir from September 10th-13th (E.C.J.S., C.D.).

9. Little Grebe (375).—Bred in many places from low-lying dykes to high-lying tarns; but rather more sparsely than usual. Called at Gouthwaite at times of movement—February-March and November-December (A.F.G.W.). One was on the Wharfe at Pool on January 16th (R.H.). Fairburn Ing showed *c.* 80 on August 22nd-23rd, up to *c.* 60 in late October, 20 on December 5th (C.W., A.F., etc.). At Swillington Ing *c.* 70 on August 29th included some with young (G.C.). At Mickletown Flash were 38 on September 3rd and 24 on December 12th (A.F., R.W.). Single birds were noted at Spurn from August 10th-31st and on three days in October

12. Leach's Petrel (351).—One was caught in Scarborough Harbour in September, and flew away strongly after being rested at the Woodhead Museum (T.M.C.). One on the sea near Hornsea on October 4th was seen to fly away (G.R.B.).

A Leach's Petrel at Spurn on September 27th sat the water at high tide off the Chalk Bank with head into wind. It gave an occasional flap of wing showing its white rump and wing-patches clearly. It made two short flights of a few seconds but otherwise just sat with head under wings. The pale wing-patch was clearly visible, at 50 yards, when at rest. As the wind and tide brought it towards shore into small breakers, it swam out again. When Great Black-backed Gulls flew overhead, the petrel flew for some 200 yards. The forked tail was seen but not considered a clear field character (J. Cudworth, D. R. Wilson and others).

14. Storm Petrel (350).—A Storm Petrel flew north in the early morning of September 17th over the sea near to the Spurn Narrow Neck, and was well described in the log as seen by C. E. Andrassy, G. R. Potts, M. Ness, C. Winn and C. W. F. Hirst.

16. Manx Shearwater (355).—Watchers on the coast saw many Manx Shearwaters passing from April until October. The last was at Spurn on November 14th. The largest passage took place at the end of August with 32 registered at Spurn on the 28th, 55 on the 29th, and 44 on the 30th. Off Hornsea, M. K. Taylor recorded 24 on August 29th and 11 on the 30th. From a boat two to three miles off Scarborough on August 30th, J. R. Mather and others saw *c.* 80 pass north. These same days were also especially notable for Manx Shearwaters at Teesmouth and off Redcar (D.R. and P.S.). Smaller numbers were seen at other places and on other dates.

Another passage followed at Spurn in mid-September with 37 on the 16th as maximum, and smaller numbers off Flamborough (A.J.Wms.), and off South Gare and Redcar (D.R and P.S., E.E.J.). Two passed Scarborough on September 23rd and three on the 24th and 26th (R.H.A.).

A party of eight Manx Shearwaters on August 25th came up river to Cherry Cobb, turned, and went down again (J.C.H.L.). A Manx-sized Shearwater on September 16th had brownish upperparts, with no sharp demarcation between greyish underparts and upper-parts; and may have been another race or species.

19. Great Shearwater (360).—Three large shearwaters seen from the pilot ship off Spurn Point on June 3rd and 4th were possibly of this species (J. Raddings). A dark-capped shearwater off South Gare, Teesmouth, on September 20th, larger than Manx, showed white at the base of the tail and otherwise conformed to this species. It followed a ship standing in for the river, then veered north, and glided rather higher above waves than the Manx and was probably of this species (D.G.B.).

21. Sooty Shearwater (363).—Recorded at Spurn from August 27th to 30th. Maximum six on the 29th, during the big passage of Manx; and odd birds on September 4th and 6th. From September 13th to 17th passage by this species was very remarkable—on the five days 12, 10, 20, 43 and 26 were recorded, mostly single birds. This was also a period of considerable passage by the Manx, but the larger Sooty predominated, with 43 Sooties on September 16th against 37 Manx. Excellent views were obtained by a party of nine observers. Two Sooties in the evening at high tide on the Humber-side ' gave some wonderful flight displays ' (C.W.), one coming within 100 yards of the observers. Nineteen occurred at Spurn on September 23rd, when three flew south at Scarborough (R.H.A.); and a few birds occurred on other days.

Sooty Shearwaters were also noted in mid-September on the East Riding coast farther north, especially at Flamborough where seven were counted on September 15th (A. J. Williams). Two flew north off Filey Brigg on August 5th (J.R.M.); and on the 29th five were seen off Staithes (J. C. Nicholson, H. P. K. Robinson); and one off Hornsea (M.K.T.). Three were off Flamborough on October 11th (A. J. Wms., H.O.B.), and one off Atwick (G.R.B.).

26. Fulmar (368).—Fulmars occur inland sometimes, possibly prospecting for suitable cliffs. One was seven miles from the sea near Kildale on May 24th (J. McK.); and two near Guisborough from May 29th to 31st (D.G.B.). An adult picked up near Huddersfield on May 22nd was partially oiled, and died on the 25th (R.Cr.). One flew over Scaling Dam on July 12th (D.G.B.).

Spurn occurrences were casual except on June 12th, 13th, 14th when 8, 27 and 20 were counted; and on September 13th, 14th, 15th, 16th, 17th when 17, 3, 31, 190 and 7 were recorded respectively. On September 16th, the day of shearwater passage, 187 Fulmars passed north between 17.15 and 18.40 hours. Fulmars passed Hornsea northward at the rate of 34 per hour on May 10th (M.K.T.). Three were flying up to Flamborough Cliffs on November 15th (H.O.B.). Twelve Fulmars near the Humber Pilot Cutter on May 20th ' appeared to be pecking at the sea '—feeding on plankton? (J. Raddings). R. S. Pollard said an increase in numbers at Cloughton Wyke was small but definite.

27. Gannet (349). Five young were watched through to the brown plumage stage at Bempton and were presumed reared (H.O.B.). Maximum counts at Spurn gave 38 on June 14th, *c.* 60 August 1st-2nd, *c.* 100 August 27th and 28th, *c.* 100 September 16th-17th, 135 September 26th, 132 October 5th, *c.* 60 October 27th On some of these dates the species showed activity elsewhere—44 were seen off Hornsea on June 14th (G.R.B.); *c.* 600 fished and passed north-west off Redcar on August 28th (D.R.S.). Much movement south was noticeable during the autumn from Scarborough Marine Drive (A.J.W.).

A bird of the year came down west of Masham on October 12th (P.Y., E.E.J.).

A first-year bird passed over Carlton, near Barnsley, on September 28th (D.S.). Six (four juveniles) were at Scaling Dam on July 19th and seven on the 26th (M.A.).

28. Cormorant (346).—No news reached me of the few Yorkshire breeding colonies. Comorants and/or Shags occur throughout the year at Spurn, frequently too far away for certain distinction; *c.* 30 from September 29th to October 4th was the maximum. Many small parties of up to eleven birds passed Flamborough southward on September 6th (H.O.B.). There were several occurrences inland: two Stocks Reservoir on March 24th; and another on November 15th (J. K. and A.E.F.); one flying east over Knaresborough S.F. on March 31st (J.R.M.); one flew over Ben Rhydding on April 25th (R.C.P.); and a ' shagorant ' at Fairburn on May 17th.

29. Shag (348).—Seven nests with young were located in the Flamborough area on July 19th (A.J.Wms., H.O.B.). Counts of Shags off Flamborough gave 77 birds on August 3rd and 90 on September 13th (H.O.B.). The species was seen elsewhere off the coast: four Filey Brigg on December 28th (B.S.P.); two off Hornsea on April 11th, eight off Aldbrough on September 15th; and one at Atwick on September 27th (G.R.B.). An immature Shag was on-shore at North Ferriby on December 18th (B.S.P.).

30. Heron (289).—Occupied nests recorded were: Whixley 7 (J.R.M.), Harewood 5 (R.V.J., A.H.B.L.), Bolton by Bowland 1 (A.P.), Healaugh 15 (W.B.), Fadmoor 4, Stillingfleet 3 (J.R.M.), Gargrave and Hornsea Mere were not reported.

Herons in the Blaxton G.P. area became numerous in autumn from 15 on July 18th to 24 on October 11th, and the keeper gave 31 as the maximum (A.E.P., J.B.). Twenty-seven on July 31st was the maximum at Gouthwaite (A.F.G.W.). Spurn records were occasional until August 15th and were then regular (one or two) until October 4th. Other coastal records also could be connected with Hornsea Mere; five flew south over the sea off Atwick on August 16th (G.R.B.).

[**36. Night Heron** (295).—A small Heron that spent most of January 14th in a weeping willow at Ramsgill was thought to be of this species; if so it may have been an escape (D.G.L., D.S., M.B.T.).]

38. Bittern (297).—One occurred at Hornsea Mere on February 15th (G.R.B.). One boomed frequently in central Yorkshire in the summer months (R.F.D.). One flew to Fairburn Ings on August 6th (D.A.S.).

[**40. White Stork** (285).—A very large bird mainly white, but with half its wings black, that flew with rounded wings, and outstretched neck, and legs projecting beyond its tail, across the Humber towards Spurn from Grimsby Marshes on April 5th, may have been this species. Wing-beats were slow similar to Heron's. Colin J. Smale had his identification book with him and used ×8 binoculars.]

42. Spoonbill (287).—On June 6th at Fairburn perfect views were had of a Spoonbill on the wing, and standing in water where it fed with side to side movement of bill, throwing its head back to swallow occasionally (Mrs. E. Granger, C.W., R.H., W.C.W., B.H.).

45. Mallard (317).—How to deal with this species in a severely limited space, now that duck-counting is so universal, is a problem. I will try to give an overall picture. The Mallard remains ubiquitous, as a breeder, and as a winter resident. A good breeding season seems to have been general, with frequent flocks in the late summer along many of the rivers. Numbers built up in autumn on reservoirs, broadly as expected, with variations and fluctuations. Leighton Reservoir gave large counts up to November 28th (*c.* 1,300 E.E.J.) only for about half to melt away in December. Gouthwaite showed more than usual, the maximum of 718 on November 21st being double the previously recorded figure; but numbers had dropped to *c.* 100 by December 26th, possibly partly due to shooting disturbance (A.F.G.W.). Eccup Reservoir showed fewer than usual with up to *c.* 400 in December (R.V.J., G.R.N.). Hornsea Mere expects large numbers of immigrants in winter; and *c.* 3,000 on January 3rd had decreased to *c.* 1,700 by February 1st, and to the local breeders in March; the build-up in autumn progressed from *c.* 638 on August 1st, to *c.* 800 on October 4th, to *c.* 3,000 on November 28th, and to *c.* 3,700 in mid-December (G.R.B.). The Humber estuary near Kilnsea showed more Mallard than usual with maxima of *c.* 350 in late December; a figure that was exceeded on some inland waters with which I cannot deal.

46. Teal (319).—Our next most ubiquitous duck. Bred in many places from high moorlands to practically sea-level marshes. Of two broods at Scaling Dam on

August 6th, one consisted of very young birds (J.L.). I can only refer to the larger concentrations, but may possibly correlate some to reveal points of interest that a mere list might not make obvious. At Hornsea Mere there was a sudden increase to *c.* 920 on January 3rd (G.R.B.), and after the 4th only very few. Also in the early months *c.* 150 were on the Blaxton gravel pits (A.E.P., J.B.); Hornby lakes showed *c.* 135 on January 4th (G.R.P.); and *c.* 200 at Bubwith Ings on January 25th (H.O.B.) had become *c.* 1,500 on February 22nd (A.F.G.W.), and were estimated at *c.* 700 on March 1st (M.R.S.): the unknown breeding areas towards which they were moving were probably widely separated. Fairburn Ings showed *c.* 300 on February 28th (C.W. and others); and Gouthwaite Reservoir *c.* 100 (A.F.G.W.). *Circa* 750 near Broomfleet Island on January 3rd had probably fluctuated much before becoming *c.* 250 on April 1st (S.M.).

After the breeding season, *c.* 430 at Fairburn on August 5th were disclosed when disturbed by a Marsh Harrier (J.K. and A.E.F.). The Gouthwaite figure for August 14th was 260 (A.F.G.W.), for October 18th was 241, but had been down to very few between the dates, and individuals may have changed. On September 14th *c.* 250 were on the sea off Fraisthorpe (Miss J.F.).

The Lockwood Beck Reservoir had 289 on October 14th (M.A.); they would soon disperse. *Circa* 350 at Fairburn on October 17th (C.W. and others) had become *c.* 800 on November 22nd (E.G.)—*c.* 250 had flown down river from Swillington November 21st (M.D., G.R.N.) and were probably included. *Circa* 300 fed on the bottom of the recently drained Wintersett Reservoir on December 12th (J.C.S.E., A.N.S.). Maxima at Spurn, doubtless connected with migration, were 21 March 29th, 55 August 21st, 34 August 29th, *c.* 50 September 17th and 25th, *c.* 40 October 17th and 18th.

47. Garganey (322).—A pair at Flamborough on March 25th (A.J.Wms.) were the earliest. One or two occurred at Spurn in the Lagoon area on a number of dates from March 29th into May; and on days in early August. Several pairs were about the Fairburn Ings N. Reserve during the season (R.F.D.); up to 18 were in the area on some days in August. A pair were at Finningley on May 7th and three on the 8th (A.E.P., J.B.). Single birds were at Great Hatfield on May 27th (G. Bird), and Scaling Dam on July 26th (M.A.). At Hornsea Mere appeared on May 18th, July 18th, and up to three on some days in August and September with the last on October 3rd (G.R.B.).

49. Gadwall (318).—The increasing frequencies of Gadwalls continue. At Hornsea Mere, after one on January 3rd, birds persisted with a maximum of 22 on February 1st, were reduced to four by May 2nd and so remained through the summer. On September 19th there were eleven; of 48 on October 31st and November 8th, 23 were males, and the number had become 56 on December 25th (G.R.B. and others).

Three Gadwalls appeared on the Fairburn Ings Reserve on February 19th, and the species was seen on many days, and a pair bred. Seventeen were present on September 1st, decreasing in October to the last on November 8th (C.W. and others). A single bird appeared at Harewood on April 2nd (G.R.N.), and a pair on Worsborough Reservoir on April 11th (A.A., D.S.); one was at Sawley Pond on October 11th and 23rd (M.R.S.), and one at Gouthwaite on December 29th. Three were at Swillington Ing on August 4th, and six or seven on the 10th (M.D.).

50. Wigeon (323).—Odd Wigeon occurred near Easington on a few days in May and June; slightly more and oftener at Hornsea Mere; and one, perhaps two pairs, on a Pennine moor where ducklings were found on May 24th. One was at Flamborough on June 7th (A.J.Wms.), six at Cherry Cobb on June 14th (J.C.H.L.), and two at Scaling Dam on June 16th (M.A.).

Wigeon were reported from twenty inland waters, as well as from several coastal areas. The Derwent Valley floods usually show big numbers as the birds congregate preparatory to departure. *Circa* 3,000 were at Bubwith Ings on February 22nd (A.F.G.W.) and *c.* 2,000 at Aughton Ings on March 1st (H.O.B.).

Hornsea Mere showed *c.* 970 on January 3rd (G.R.B.); and a rough estimate of *c.* 2,000 during a hare-shoot on October 17th (A.C.) and up to *c.* 700 in November and December (G.R.B.). The Spurn Observatory figures give *c.* 300 for January 1st-2nd, which figure was not approached again until November 22nd (*c.* 400 entered in the log without comment), and December 30th-31st (*c.* 350).

Passage was noted at Redcar on August 30th-31st, September 13th-17th, and 26th, October 18th and November 1st (D.R. and P.S.). The foregoing September items coincided with counts made of Wigeon on the sea off Fraisthorpe: *c.* 50

September 14th, 42 September 16th, 65 September 24th (Miss J.F.). Numbers also began to increase at Spurn from September 13th.

52. Pintail (325).—Of Pintails in Yorkshire in 1959, a large proportion occurred in coastal areas: the Humber Estuary, Hornsea Mere and coast, and the Tees Estuary. Most records everywhere occurred from January to April and from August to November. The Easington lagoons had single birds from May 7th to 12th, and from June 12th to 14th. Numbers were small excepting for the following: 11 at Hornsea Mere on September 6th, October 11th and 31st; and *c.* 50 on the 17th (G.R.B., A.C.); and 20 at Cherry Cobb on January 18th (R. Holmes, A.V.). Nine were on the Tees Estuary from March 26th into April (D.G.B.). There were a few records inland: Scaling Dam, Gouthwaite, Eccup, Harewood, Swillington and Fairburn Ings, Wath Ings and the Derwent flooded areas; with none in spring-summer; and maxima of 16 on Bubwith Ings on February 22nd (A.F.G.W.) and *c.* 50 at Aughton Ings on March 1st (H.O.B.). Most records referred to one or two birds, which tended to remain on one water and be noted by successive observers.

53. Shoveler (326).—Far more Shovelers are now recorded, numerically, and oftener, and at more places than happened a few years ago. Breeding was proved at several places. Maximum occurrences were: *c.* 24 in the Tees area in April (P.J.S., B.C.); 35 at Hornsea Mere on February 28th and *c.* 100 on November 9th (G.R.B.); *c.* 30 at Fairburn on March 29th and *c.* 145 on September 20th (C.W. and others); *c.* 20 at Bubwith Ings on March 1st (H.O.B.); 21 at Stocks Reservoir on November 25th (J.K. and A.E.F.); and smaller numbers elsewhere. Spurn showed eleven on April 20th.

[**Carolina Duck.**—A drake squatted on a submerged log in the Wharfe near Harewood on January 26th would doubtless be an ' escape ' (D.B.I.).]

54. Red-crested Pochard (327).—Occurred at Hornsea Mere: two on September 26th (G.R.B., A.A.W.); four (including one drake) from September 27th to October 18th, and two on December 13th (G.R.B.). They were possibly ' escapes ', like a duck ascribed to this species near Finningley on May 3rd (A.E.P., J.B.).

55. Scaup (331).—Occurred at Hornsea Mere from January to May and in the autumn-winter; 15 on October 11th was the maximum, with 16 as the coastal maximum off Hornsea on November 8th (G.R.B.). Spurn showed 15 on September 13th (and fewer on some other days); and parties on November 14th were too far out for separation from the Tufted Duck (C.W., G.R.B.). A few occurred at Teesmouth in March-April (D.G.B. and others), and one from May 16th to 31st (P.J.S.). Two were on the Esk at Sleights on February 26th (T.W.A.W.). Odd Scaups occurred on ten inland waters; and up to four at Finningley on October 17th-18th (A.E.P.).

56. Tufted Duck (330).—The large numbers at Hornsea Mere in January (*c.* 380 on the 4th (G.R.B.)), and in late autumn (*c.* 460 on November 29th (G.R.B.)), stress the species migratory habits. Welton Water had *c.* 60 on December 13th (B.S.P.). Thirty-six in two parties flew south at Spurn on November 14th and more may have passed (C.W., G.R.B.). Present on many inland waters throughout the year, and bred successfully on some. The average size of nine broods at Fairburn on June 27th was 5.77; of eight broods on July 18th, 3.625 (R.F.D.). Fairburn maxima recorded were *c.* 319 on January 25th, and *c.* 270 on December 6th (C.W. and others). Malham Tarn had *c.* 80 on August 14th and 29th (J.E.B.), Sawley Pond had 84 on October 28th (D.W.). Stocks Reservoir had 46 on August 19th (F.W.B.). The species may occur as single birds or in numbers; or as breeders, on almost any of our waters.

57. Pochard (328).—Recorded from 21 waters. The Pochard is curiously local in choice of breeding haunts. At the Fairburn Ings N. Reserve six broods on June 27th averaged 2·6, four on July 18th averaged 4·25; and six on Brotherton Ings on July 18th averaged 5·66 (R.F.D.). The larger maximum concentrations were: Hornsea Mere 442 on January 3rd and up to *c.* 570 in November to December (G.R.B.); *c.* 150 at Wintersett Reservoir on January 4th (E.G.); 64 at Swillington Ing on March 27th (A.H.B.L.); and *c.* 100 at Fairburn in January, increased to 376 by March 1st and only *c.* 160 on the 6th, with 59 on the 31st (C.W. and others). Occurred only seldom at Spurn, mainly in early November, nine being the maximum on the 14th.

60. Goldeneye (332).—Recorded on 33 waters. Two on May 4th were the last at Gouthwaite (A.F.G.W.). A brownhead swam on Harewood Lake during the latter half of June into July (R.V.J.). Fairburn had two on May 5th and single birds

on June 5th, three on July 2nd, and the next appeared on September 19th (C.W. and others). Three appeared on Hornsea Mere on October 10th (G.R.B.) and an immature bird had reached Sawley Pond by October 11th. October 18th was the more usual first date.

Glasshouses Dam had a maximum of 22 on December 6th, consisting of female and juveniles which were seen to fly to Gouthwaite on several evenings, presumably to roost; otherwise the flock was always present at Glasshouses (A.F.G.W.). Other maxima were: Gouthwaite, 19 on March 30th; Scaling Dam, 16 on December 6th (M.A.); 26 Whiteholme Reservoir on November 15th and 60 on the 27th (V.S.C.); 35 Fairburn on March 28th (C.W., etc.); 42 Stocks Reservoir on January 25th (J.K. and A.E.F.); 16 on the Wharfe near Pool on February 1st (J.C.L.); and Hornsea Mere, 93 on March 30th, presumably assembled before departure—incomers built up to 73 by October 31st, and 39 still remained on November 28th (G.R.B.). The Spurn records show up to four on seven days from October 1st. Fourteen were off Redcar on November 1st (D.R. and P.S.).

61. Long-tailed Duck (334).—Occurred off Hornsea, an immature bird on January 4th; and a male from March 27th to April 11th (G.R.B.); and in autumn on November 1st, December 20th, 27th and 28th (G.R.B.). Two were off Filey Brigg on December 5th (R.H.A.); one close inshore at Flamborough on October 24th (G.R.N., M.D.); five flew north at South Gare on October 31st (D.G.B.); and one at Redcar on November 22nd (D.R. and P.S.). Two were on Scaling Dam on November 1st, and a female on December 6th and 28th (M.A.). J. Lord noticed a female there on November 8th.

62. Velvet Scoter (340).—One was at Spurn on August 2nd and a few on nine days thereafter, with maxima of eight on September 26th and eleven on November 14th. Farther up the coast was noted on seven days from September 1st (five), and eight on October 17th (B.S.P.); six were at Hornsea on November 29th (G.R.B.). Two were noted at Redcar on August 29th, and on October 28th, and regularly afterwards in a flock of Common Scoters with maximum of eight on November 8th (D.R. and P.S.).

64. Common Scoter (339).—Frequent but in small numbers at Redcar until November: *c.* 300 on November 3rd (D.A.S., J.C.P.) and 200-300 all December (D.G.B.). Big rafts of the species were few at Spurn, albeit it was present on many days; maxima were: *c.* 120 on July 18th, *c.* 230 on August 29th, *c.* 100 on September 2nd, and *c.* 120 on September 17th. The most interesting inland record came from Ossett Healey S.F. on July 27th when 72 flew west up river (A.F., R.W.). Up to five occurred on various Pennine waters, and at Fairburn Ings, from June to November.

67. Eider Duck (337).—A few Eiders, mostly immature birds, might have been seen on some part of the coast in any month; but numbers were fewer than in 1958. Despite much watching, Spurn had only two occurrences (January 14th and February 1st), until 23 occurred on May 16th, five of them adult drakes; all later flew up the Humber. A few more occurred—August 23rd, October 10th, November 7th-8th, and December 3rd. A few were at Redcar from January 17th to March 14th, and on a few days in November and December (eight on November 29th) (D.R. and P.S.). Twenty-two were off Filey Brigg on January 3rd, and a few on other days (21, March 7th), and a few on August 2nd, November 7th and 21st (R.H.A.), and December 17th (S.M., R.E.H.), and 28th (B.S.P.). Four were near Flamborough on June 24th to July 2nd (A.J.Wms.); and Eiders appeared off Hornsea in May and December (G.R.B.), five off Atwick (one ad. ♂) on August 12th (L.S.); and near Bridlington on October 24th and December 12th (M.D., G.R.N.) and 20th (A.J.Wms.).

The most curious development of this new feature of the coast concerns a juvenile male that came down to a housing estate (Barugh Green) near Barnsley on November 19th and died, leaving its corpse as evidence (G. Taylor, D.S., T.M.C.). To surmise whence these Eiders came seems still to be unprofitable.

69. Red-breasted Merganser (343).—This is another species that is recorded more frequently than a few years ago. That the Merganser is spreading southward was evidenced by successful breeding by a north-western water where nine eggs were laid and five young flew. Occurred about the Tees Estuary from January 2nd on several days to April 12th (D.G.B. and others); and a pair on May 24th (D.S-S.); and three flew north-west at Redcar on November 1st (D.R. and P.S.). One was near Scarborough on April 8th (T.M.C.). Was recorded at Spurn on a number of days to May 2nd; and on a few days from September 18th. At Hornsea two females on January 4th were all until October 31st (two), and up to four on three

days in December (G.R.B.). The Fairburn records book shows one for January 1st to 4th; and up to four on ten days in November and December. One was at Wintersett on January 23rd (M.N.R.). A female was at Eccup from February 19th to 22nd, and a male on December 5th (A.F., R.W.) and 8th (G.R.N., M.D., R.W.). Four flew down the Ribble at Paythorne on February 12th (K.G.S., E.G.D.).

70. Goosander (342).—Winter-to-spring maxima at the waters mainly frequented were: Stocks Reservoir, *c.* 100 February 3rd (A.P.) and 86 on February 7th (J.K. and A.E.F.); Eccup Reservoir, 55 on February 28th (R.V.J., G.R.N., M.D.); Hornsea Mere, 43 on March 15th (G.R.B.). May 4th at Eccup was the last date for the species.

In autumn numbers built up to *c.* 52 at Stocks on December 13th; to 25 at Eccup on December 26th (M.D., G.R.N.); Fairburn had more than in spring with 18 on December 23rd (R.F.D.); and a surprise awaited A.E.P. and J.B. at Southfield Reservoir on December 12th—37 Goosanders included only two males. The Hornsea Mere population had reached 72 on December 25th (G.R.B.).

No other of the 16 waters involved ever showed double figures. Two occurred off Filey Brigg on March 1st (T.M.C., R.H.A.); two off Hornsea on October 4th and November 8th (G.R.B.); and a male on Peasholm Lake, Scarborough on December 19th (A.J.W.).

71. Smew (344).—All records were in December: one Hornsea Mere on the 13th and 25th (G.R.B.); a female at Eccup from the 18th (G.R.N., M.D., E.C.S.); two at Fairburn (J.D.P.) and one at Harewood (R.V.J.) on the 24th; and a female at Scout Dyke Reservoir, Penistone, on December 28th (A.N.S.).

73. Sheld-Duck (315).—The Tees Estuary off Greatham Creek on January 11th (P. Reid) and 27th (A.B.) sheltered *c.* 550-600; and 243 on March 8th (B.C., P.J.S.). Such numbers were approached nowhere else, except in the upper Humber region with *c.* 310 near Broomfleet I. on April 1st (S.M.). Up to *c.* 100 was recorded for the same area on other days, as in other years. Occurred almost daily at Spurn with maxima of 47 on March 19th, and *c.* 60 on June 13th, including 46 in three parties that came off the sea in the early morning apparently to pass southward. Breeding was proved at Spurn by eight very small young on the shore near the lighthouse on May 26th (F.H.) which was probably the brood of which at least four were seen on June 4th (J.H.L., J.K.F.).

Parties of Sheld-ducks also occurred off Atwick (11 northward on March 8th, 18 southward on April 25th, 10 southward on June 7th (G.R.B.)); a few off Hornsea; 18 off Fraisthorpe on October 5th (Miss J.F.); 7 off Filey on April 16th (T.M.C.), and 23 on November 7th (R.H.A.). Up to 31 at Sunk Island on October 11th and up to 26 in November (A.C.) were unusually large numbers for the lower Humber in autumn (H.O.B.). Inland occurrences by some 15 waters were mainly in March-April and from September, with numbers very small; but Swillington Ing had a pair on May 11th (G.K.M.) and on July 5th (G.C.); and Fairburn had odd birds in June. The larger occurrences at inland reservoirs were: 10 at Scalby Dam on April 16th (H.R.); 19 at Eccup Reservoir on December 10th (G.R.N.) and 21 at Gouthwaite on the same day (D.G.L., A.S.)—the same birds may have been involved.

75. Grey Lag Goose (303).—Three were on Hornsea Mere on February 15th (G.R.B.). Odd birds were at Eccup from January 25th (G.R.N., M.D.), and near Masham on several dates in March (E.E.J.). Two were at Spurn on February 19th. Three that were examined narrowly by G.R.E. at Spurn on August 4th might have been accounted for by the report that wildfowlers in the eastern counties are rearing and releasing Grey Lags (and see under Pink-footed).

76. White-fronted Goose (304).—Thirty-one were at Scaling Dam on October 11th (E. L. Arnold, F. G. Grey, D.G.B.), and 25 from October 13th to 18th (M.A.). A party of nine at Sunk Island on October 11th showed barrings and white blazes clearly (A.C.). One was at Fewston and Swinsty Reservoirs from October 18th to December 13th (E.S.S., R.C.P.).

78. Pink-footed Goose (307).—The usual odd bird occurred on several waters frequented by Canadas. Such birds usually have something wrong with them, mainly the result of lead, or they would not present such good views to an observer.

In the early months up to *c.* 3000 frequented the Humber Refuge area until February 28th, when observation ceased. A Pink-footed Goose at Greatham Creek (Tees Estuary) on April 26th (R.M., A. and A.J.V.) was the last.

Grey Geese arrived over the Humber Refuge area (*c.* 30) on September 14th and built up to *c.* 5,000 by the 28th. Numbers there from October 6th to 16th were

recorded as *c.* 1,500; after which they increased to *c.* 10,000 from October 21st to 26th; and again to *c.* 20,000 from October 27th to November 7th. On November 3rd, Morley Hedley estimated the geese at *c.* 15,000. There is no doubt that numbers were very high and that the Refuge harboured a large percentage of the English Pink-footed population. Many skeins passed over Holderness heading for the upper Humber on October 18th, and many flocks headed southward from Teesmouth. Several people reported possible flocks of Grey Lags in January to March and in autumn; but without any doubt the vast majority of wild geese in Yorkshire are the Pink-footed Goose, some of which can use deeper notes than average.

Circa 150 pink-feet were at Spurn on October 18th; and 56 next day, and 31 on November 28th; with odd birds on a number of dates.

79. Snow-Goose (308).—A white goose with about half the wing black passed north-west near Aldborough on December 15th. Mr. H. Fisher who saw it is a very observant wildfowler for whom Mr. G. Bird vouches.

80. Brent Goose (312/13).—A dark-breasted bird on Leighton Reservoir on March 31st was seen for some time later on land and on water (E.E.J., F. Graham). One (also dark-breasted) occurred at Spurn from February 6th to 22nd. One was off Filey Brigg on October 24th (R.H.A., H.E.S.); and one near Hornsea on November 8th (G.R.B.).

82. Canada Goose (314).—The following are indicative of the species' spread, perhaps not always unaided, and of its change from semi-domestication to wild status. One Hornsea Mere April 5th to 18th (G.R.B.); one on the sea near Flamborough on May 31st (G.R.N., M.D.); four at Runswick Bay on June 2nd (W.K.R.); a pair on Arthington Hall Pond on May 2nd (P.S.); a pair on St. Paul's Pond, Leeds, with young on May 25th (E.C.S., J.R.G.), the breeding of six pairs about Scar House and Angram Reservoirs (D.S.); and the flock of 16 on Castle Howard Lake believed to stem from the pair that first nested four years ago (E.W.T.).

Counting at reservoirs, etc., is complicated by temporary visits of the birds to river banks and adjacent fields, and other movements, but the places where large flocks occur vary little. How far such resting and feeding grounds are interchangeable is uncertain. In the Masham area where many breed the maximum concentration of *c.* 285 was reached at Leighton Reservoir on September 20th, after which numbers declined very considerably to the year end (E.E.J.). *Circa* 280 in fields by the Wharfe near Weardley on January 23rd (H.L.S.); and *c.* 200 at Harewood on November 22nd (G.R.N.) I take to be birds that wintered in that area where comparatively few breed (in two winters), and birds from Masham could be included as in the flock at Gouthwaite that increased to *c.* 150 from November 22nd to December 6th and then declined to *c.* 90 (A.S., M.B.T., M.R.S., A.F.G.W.). A number of other waters showed figures in excess of 100 on various dates.

84. Mute Swan (302).—Bred in a number of places. The numbers at Fairburn were bigger than ever in summer: *c.* 180 on August 18th was *c.* 150 more than the figures for April and November, and both build-up and fall were gradual (C.W., R.F.D., J.D.P. and others). Broomhill Flash had 64 on April 11th and only 5 on May 2nd (R.J.R., J.S.A.). Swillington Ing (A.H.B.L.) showed 31 on February 15th and November 15th, but only 10 on June 7th. Numbers at Hornsea Mere fell from 92 on January 4th to 44 on May 16th, but began to rise by the 31st (72) to 106 on July 4th, and 130 on November 8th (G.R.B.). Welton Water had 11 on March 28th, 26 on July 11th, and 38 on November 29th (B.S.P.).

85. Whooper Swan (300).—Noted on at least 24 waters at both ends of the year, mainly in small numbers. One at Fairburn on April 23rd was the last of spring (C.W., etc.); one at Gouthwaite on September 26th was the first of autumn (A.F.G.W.). Numbers reached double figures at Lindley Reservoir, the Wharfe near Pool, Hornsea Mere, Wath Ings, Fairburn Ings, and Blaxton G.P. in the early months; and at Scaling Dam and Fairburn Ings in November and December. A juvenile was on the Spurn ' canal ' on December 12th.

86. Bewick's Swan (301).—Was recorded on four dates at Fairburn from January 10th to April 7th (C.W. and others); two at Swillington on March 27th (A.H.B.L.), 26 at Ringstone Reservoir on March 19th (I.M.); at Eccup Reservoir on December 10th (7) and 11th (11) (G.R.N.); at Whitenook Reservoir (Barnoldswick) 14 on November 8th and 2 at Woodhouse Mill (R.G.H.), 5 on December 5th (A.P.); at Gouthwaite, 13 on December 9th and 5 on the 11th (A.F.G.W.); and at Welton Water 5 on December 18th (S.M., R.E.H.).

89/97. Eagle.—An Eagle was seen on August 13th in the north-western fells (J.R.H.).

91. Buzzard (269).—At least seven young were reared from four nests, and two nests were robbed in the north-west (H.W.B., P.M.). Reports of Buzzards came from 16 areas on various dates, most of them from August onward, particularly in September, when hill country was not especially favoured. Occurred at Spurn on September 24th, October 18th, and November 22nd on which date one was also seen at Patrington Haven (A.C.). One circled north-west over Redcar on May 9th (D.R and P.S.). Single birds elsewhere remained in an area for periods of weeks.

92. Rough-legged Buzzard (268).—C. Winn (who has recently seen this species in Sweden), and R. F. Clarke watched a buzzard with a whitish undertail and a broad dark band at the tip, at Fairburn on May 24th, and were sure it was this species. A large raptorial remained about Stittenham from September 20th to October 31st and was seen frequently by a number of people who declared it ' had feathered legs like an owl ' (R.F.W.).

93. Sparrow-Hawk (277).—A few more reported than in 1958 from a dozen areas; but ' much reduced ' was a general comment. Recorded at Spurn on March 28th, September 17th; and one or two on nine days after October 4th. One was at Redcar on September 4th (D.R. and P.S.). A tired bird came in from sea, harried by Greater Black-backed Gulls at Flamborough on October 18th (A.J.Wms., H.O.B.).

96. Black Kite (279).—On October 30th in the Washburn Valley, two large birds of prey flew in a series of wheeling glides, then started tumbling, one making passes at the other. One flew away, and the other passed in a long glide to an oak *c.* 200 yards distant. Before it too flew away J.R.G. got a view for a few seconds through a ×25 telescope. It was about buzzard-size but with longer wings and tail. Dark brown in general, but more russet under tail and lower belly. Head greyish-brown. Tails of both birds showed a shallow but distinct fork. Flapped lazily and slowly, and when gliding held wings with a definite angle at the joint. Sketches were made on the spot. J. R. Govett is satisfied of the species; and tried to get A.H.B.L. and E.S.S. and others on to the birds but they could not be found again.

99. Marsh-Harrier (271).—A pale-crowned Marsh-Harrier first seen at Hornsea Mere on May 16th seems to have summered (G.R.B.); and was seen and reported by several other people on different dates. An all dark bird at Patrington Haven on July 23rd (A.C., H.O.B.) was probably the same bird seen there on August 7th (A.C.) and 16th (L.S.); when an adult male occurred at Sunk Island (A.C.); and three were about Hornsea Mere (G.R.B.). Two were about the Mere in September (A. A. Walker); and one, immature or female, was at Hornsea Mere on November 15th (B.S.P.).

A Marsh-Harrier at Fairburn on August 5th put more Teal to flight than J.K.F. had previously seen there. A probable Marsh-Harrier, with white on head was at Eccup on September 30th (G.R.N.). A male Marsh-Harrier flushed from a bank-side in the Easington lagoons area on August 2nd, flew south and alighted near Kilnsea Grange (G.R.E., A.A., D.J.S., C.B.).

100. Hen-Harrier (273).—Passage of this species at Spurn was confined to the period October 19th to 27th: a harrier passed south on the 19th over the sea without certain identification. On the 20th the build of another moving south was too heavy for Montagu's. On the 21st one gave very good views as it ' quartered ' the lagoons area. Rather curiously a Merlin accompanied it, and when the harrier put up small birds the Merlin chased them, returning near to the harrier when its chase was unsuccessful. When last seen the harrier had settled down on the ground. The harrier was not seen on the 22nd, but on the 23rd was watched ' quartering ' the *spartina* south of the cottage, and standing on the high-water mark where a curlew strolled unconcerned about a few feet away. This harrier, an undoubted *cyaneus*, was darker than the ' lagoons ' bird of the 21st; and was seen again on the 24th sailing about the Warren, where two were seen on the 25th and 26th and one on the 27th. At least five thus occurred during this period of nine days to the delight of many people.

102. Montagu's Harrier (272).—A harrier that flew west over Harrogate on May 2nd (P.J.C.), and a male at Atwick on May 9th of which the view obtained was not good enough to enable a bar on the secondaries to be seen if there was one (G.R.B.), could have been of this or the preceding species. A ' ring-tail ' near Langsett on July 18th had a rump off-white and was considered to be a Montagu's

(J.S.A.). A juvenile male Montagu's Harrier at Spurn on August 15th gave fine views down to *c.* 50 yards as it hunted over the Humber-shore and the *Spartina* grass (J.C., J.H.I.L.).

104. Hobby (261).—On October 17th at Fairburn, C. Winn and R. J. Rhodes watched a small hawk ' mock-stoop ' at a couple of gulls and fly rapidly away. It had pointed wings, a tail shorter than a Kestrel's, the moustachial stripe was seen; its underparts were light, heavily streaked; the tail was barred brown and white. C.W. saw rusty thighs. Neither observer had any doubt about the bird's identity.

105. Peregrine Falcon (259).—One young bird was known to fly in the north-west. Another pair nested unsuccessfully. A Peregrine Falcon near Masham on March 18th had killed a Wood-Pigeon (P.Y.). The species was seen in a few other places. In the Spurn log was recorded on seven days in September and three in October. Single birds passed northward on September 14th and 15th. On the 16th one was flushed from the Humber-side near the Chalk Bank at *c.* 20 yards; and on the 19th perhaps the same bird chased a Curlew-Sandpiper up and down without being seen to strike. One came low off the sea to alight on the beach on October 19th. Occurred on Filey Brigg on March 7th (R.H.A., H.E.S.); at Bempton on April 1st (T.M.C.); and at Sunk Island on October 11th (A.C.).

107. Merlin (262).—Occurred at Spurn on January 1st and on a number of days up to April 29th; and on August 26th, September 24th and 25th, on four days to November 1st, with three that passed south on November 28th, and one on December 30th. One was at Cloughton on January 27th (R.S.P.) and one at Flamborough on December 18th (S.M., R.E.H.). Was noted near South Gare on January 11th, at Redcar on March 1st, July 11th, September 19th (one in off sea) and 20th (D.R.S., D.S-S., I.S.); and at Hornsea Mere on May 16th (G.R.B.). Most inland records are for the breeding season. Nested in a number of areas. A Merlin pursued a Crossbill near Ilkley on March 8th (J.C.L.); and one chased sparrows near Otley on January 2nd (D.B.I.), and there were other records away from the breeding season and breeding areas.

110. Kestrel (263).—One dropped to and flew off with a Dunnock on my lawn on January 1st (H.J.W.). Bred on Leeds Town Hall (R.V.J.); and five flew together about a mill in Bradford 7, where also nested (K.H.). Passed as usual at Spurn with nine on October 20th and ten on October 21st, as maxima; and was recorded almost daily except in June-July.

113. Black Grouse (513).—Was reported from Upper Ribblesdale, Kingsdale, Deepdale, Cam Head above Starbottom, Stock Reservoir; and one was shot at Ilton on October 6th with a crop full of acorns (P.Y.).

115. Red-legged Partridge (519).—The Spurn population is diminished, but up to ten (once 13) were reported on some days in autumn. Possibly fresh areas for the species are: Staveley-Occaney, five in May (J.R.M.); and near Bramhope, two on October 3rd (D.B.I.).

117. Quail (520).—Calls were heard near Ingbirchworth in July (J.C.S.E.), near Beighton on May 27th (R.G.H.); and at Stainborough, near Barnsley, during most of the afternoon of July 8th (D.S.).

120. Water-Rail (509).—One ringed at Spurn 11/1/59 by B.S.P.; was recovered at Holzendorf, near Scheverun (Mecklenberg), Germany, 2/5/59 (53° 41′ N., 11° 37′ E). There were three other Spurn records in March, and no more until September 2nd after which up to three were recorded on a number of days to December 27th. To have Water-Rails reported from 20 areas inland was most unusual. South-west of Malton R. F. Wormald described it as ' more noticeable than usual '; and so others found it. The 20 areas cover most of lowland Yorkshire and foothills of the Pennines. One was near Austwick on October 11th (K.H.). Was present most of the year at the Fairburn Ings N. Reserve and possibly bred; numbers estimated from calls grew in the late autumn (*c.* 12 November 6th) (C.W. and others). Was in Golden Acre Park (Leeds) on April 19th (P. Baldwin) and November 23rd (G.R.N.). Birds dead below wires at Ringstone on November 3rd, and injured near Halifax on November 6th (I.M.) demonstrated again the species' facility for hitting things during nocturnal migration.

121 Spotted Crake (505).—A call, probably of this species, was heard at Fairburn on May 16th (W.C.W., D.J.R.P.); and one at Welton Water on December 17th enabled its diagnostic features to be noted (S.M., R.E.H.).

125. Corncrake (504).—Fewer Corncrakes were noted than Water-Rails, which would have been impossible in my young days. The places where heard or

seen were: near Askrigg, East Witton, in Coverdale (two places), near Huby, Rievaulx, Ingbirchworth, near Scar House Reservoir, Hornsea; and Flamborough on September 14th. Occurred at Spurn on April 18th and 19th, and on September 13th and 15th. The latest was at Houghton on October 20th (R.F.W.). One was found dead under wires at Wath (Nidderdale) on June 3rd (A.S.).

126. Moorhen (510).—A first-winter male ringed at Knaresborough S.F. on 6/11/1955, was dead, three miles ESE, at Ribston 1/5/59 (H.N.S.). A White Moorhen drew attention near Blaxton during the early months (A.E.P., J.B.).

127. Coot (511).—Hornsea Mere and Fairburn Ings had as many Coots as ever, or more. On some smaller waters Coots were fewer than in 1958.

Hornsea Mere: The figure of *c.* 2,300 of January 4th was already decreasing by the 24th; and by February 21st was estimated at *c.* 500 (R.H., A.V.); and at 161 on April 5th (G.R.B.). Thence numbers progressively increased throughout the summer and autumn (G.R.B.) and had reached the figure of *c.* 2,300 again on December 28th (F.E.C.).

Fairburn Ings: Numbers fluctuated considerably in the early months, then remained around 300-400 from May into June, and by August had become *c.* 1,100 and continued to increase in September to a figure of *c.* 1,900 on October 18th; after which numbers fell to *c.* 800 on November 6th and *c.* 600 on December 6th. The big figures included juveniles.

Ripley Lake had *c.* 150 on December 6th and *c.* 120 on the 15th (A.F.G.W.). At the Sawley Lake a few miles away there were no large numbers (M.R.S.), perhaps because the underwater vegetable food was in shorter supply; or because supplies were better elsewhere than in early 1958. There was no breeding on the Knotford Nook G. Pits but more than 40 Coots present in late August were halved by September 29th (P.S.). At Welton Water, where three pairs bred, 35 on December 13th could have been the result. The species turned up near Spurn in March and bred.

On a small pond at Staddlethorpe on November 2nd were an albino Coot and twelve normal birds (A.F.).

131. Oystercatcher (452).—One at Fairburn on February 22nd (C.W.) was the earliest inland; and one that flew over Scawthorpe (Doncaster) on December 19th the last (R.J.R.). In April occurrences became fairly frequent in the neighbourhoods of riverside breeding areas, in which probably 30 to 40 pairs bred; most left in August. About 20 wintered near Redcar where peaks occurred of 55 on May 9th and 62 on June 6th, and *c.* 180 on August 4th and *c.* 160, September 8th (D.R. and P.S.). Many called overhead around midnight over Patrington on August 12th (F.J.W.). Parties of four and five moved down the coast at Whitby on August 16th (G.R.N.), and *c.* 60 were at Sewerby on August 26th. Maxima at Spurn were 74 on May 31st (passing birds), and 74 on August 26th.

133. Lapwing (449).—

Pull Ringed, near Harrogate, 28/5/55; near Ballycanew, Co. Wexford, 11/1/59 (H.N.S.).

Pull Ringed, Thornthwaite, 17/7/58; near Leixoes (Douro Litoral), Portugal, 18/1/59 (H.N.S.).

Pull Ringed, near Bedale, 18/5/57; Chatelaillon (Charente Maritime), France, 23/1/59 (H.N.S.).

Pull Ringed, Thresbfield, Wharfedale, 13/7/57; Middleton Quernhow, near Ripon, 6/1/59 (H.N.S.).

Pull Ringed, Horton-in-Ribblesdale, 14/6/58; Talais (Gironde), France, (H.N.S.).

Pull Ringed, Knaresborough S.F., 28/5/56; retrapped there 14/3/59.

Pull Ringed, Lingerfield G.P., 28/5/58; dead near Nottingham, 6/10/59.

In addition, Harrogate N.S. recovered four birds in 1959 within five miles of the places where ringed, one of 1956, two of 1957, one of 1958. At Stanghow, M. Allison records a bird nesting within 10 yards of the spot where it was hatched in June, 1956.

Fields near Doncaster held thousands in late January; by February 8th most had passed on (A.E.P., J.B.). The following records, which could be multiplied, are samples of what was happening over the whole county as Lapwings surged towards their breeding haunts in Yorkshire, and Northern Europe, when the thaw had begun in earnest. Movement at Redcar on February 16th, when *c.* 200 came in off the sea to fly westward, continued on the 17th and 27th (D.R. and P.S.). At Spurn *c.* 600 in many parties passed south on the 16th. Some local Lapwings were back on

Ilton Moor by February 17th (P.Y.). By February 22nd *c.* 450 had accumulated at Gouthwaite Reservoir, probably as a convenient feeding ground before spreading over the higher breeding areas (A.S., D.S., A.F.G.W.). Parties passed west near Castleford, up the Aire and Calder Valleys on February 21st (R.F.D.); and the Fairburn feeding birds increased to *c.* 500 from February 22nd to 24th (C.W. and others). Ultimate destinations were unpredictable.

Nesting began early. By March 30th nine nests held eggs near Ilkley (L. G. Dewdney); and eleven in one small area near Masham held 36 eggs on the 31st (E.E.J.). Later, R. V. Jackson found unhatched eggs in nests after the young had left. Mortality among young, too, was rather high. Nevertheless, at Gouthwaite the first post-breeding flock was 50 strong by May 30th (M.R.S.), and had increased to *c.* 320 by June 28th (A.F.G.W.), which the birds from late clutches increased further.

At Spurn, the main autumnal passages were from October 18th to 20th; and on November 1st when very large numbers passed up the Humber (*c.* 4,500), 2,150 passing in 3¼ hours from 9-15 to 12-30. On November 1st, too, there was heavy passage at Redcar (D.R.S., D.G.B.); and *c.* 750 near Scarborough on October 31st (K.H.) was doubtless part of the same movement. Flocks that came from east to Fairburn on the morning of November 22nd, until *c.* 2,000 were present, had no doubt crossed the coast somewhere, but did not connect with known records.

134. Ringed Plover (435).—A pair bred by a Yorkshire inland water, and were not the first to do so, although unusual.

Analysis and study of the numerous inland records show that odd birds were at Rotherham S.F. on February 21st (R.J.R.) and at Bubwith Ings on the 22nd (H.O.B.); at Fairburn Ings on March 7th, which was the peak day of spring passage at Spurn; and at Denaby and Wath Ings on April 12th. Welton Water had two on March 28th (B.S.P.). One or two were recorded from May 2nd to 10th (Fairburn, Ossett, Wintersett, Knotford Nook); and up to four from May 25th to June 8th (Wath Ings, Denaby Ings, Fairburn Ings, Fly Flatts Reservoir, Cold Edge Reservoir), and 17 at Wintersett on May 31st; and 7 and 9 at Gouthwaite Reservoir on June 6th and 7th. Cherry Cobb had *c.* 250 on May 21st (H.O.B.).

In July to early September, the before-mentioned waters and others showed up to five on some days; mainly in mid and late August. Larger figures were: 12 at White Holme Reservoir on August 28th (V.S.C.); and up to *c.* 30 at Wintersett from August 15th to September 1st, with a few after; and one on October 29th (the reservoir had been drained and presented much mud). Single birds were at Helmpholme on the River Hull (H.O.B.), and at Leighton Reservoir (E.E.J.) on November 1st and at Blackmoorfoot on November 15th (C.D.). The Gouthwaite Reservoir peak came with 20 on August 16th (A.F.G.W. and others); three there on August 5th were seen to take off from mud, climbing until out of sight, south-SSW.

On the coast, August 22nd (*c.* 50) was a peak day for passage by the species at Redcar, where *c.* 50 sheltered in furrows of coastal ploughed land on October 25th, with *c.* 20 present to the year end (D.R. and P.S.). At Spurn, after daily records of *c.* 50 from August 12th to 20th, *c.* 200 were recorded from August 21st to 25th, and *c.* 100 from August 26th to September 4th.

135. Little Ringed Plover (438).—Bred in several areas and suspected of doing so in a new one. Eight pairs, possibly nine or ten, reared young. One that occurred at Knaresborough S.F. on May 24th wore a ring on its right leg (J.R.M.).

139. Grey Plover (444).—Inland occurrences were more frequent than usual: Fairburn, 1 January 24th (A.F.), 1 February 15th, 2 May 10th, and June 30th (C.W. and others); Wintersett Reservoir, 1 May 10th (J.C.), 1 May 26th and 2 on the 28th (J.C.); White Holme Reservoir, 1 August 23rd (V.S.C., I.M., T.K.); Swillington Ing, 1 August 12th (G.R.N.); Gouthwaite, 1 August 17th-20th (A.S., M.B.T.); Lindley Reservoir, 1 September 13th (C.G.B.); Blacktoft, 1 November 21st (R.W.); and Eccup Reservoir, 4 December 5th (A.F., R.W.).

The main spring passage called at Cherry Cobb—86 on May 21st and *c.* 200 on the 22nd (H.O.B.). At Spurn maxima were: up to 39 on March 27th to 31st; *c.* 150 September 5th, with up to 114 from September 15th to 17th, and up to 74 October 12th to 17th. Thirty were at Patrington Haven on August 15th (R.J.R.).

140. Golden Plover (440).—*Circa* 100 on March 8th was the spring maximum at Spurn. *Circa* 100 was reached in autumn on September 27th, October 10th and 27th, with *c.* 300 on October 24th; 44 passed Hornsea southward in small parties

on the 25th (G.R.B.). Up to *c.* 200 were in the Redcar coastal fields until March 12th and *c.* 150 on September 24th (D.R. and P.S.), and *c.* 300 on November 1st

Considerable flocks occurred inland of which the principal were: in the Huby-Weeton-Pool area of Wharfedale with *c.* 300 on January 20th and up to *c.* 200 in February (H.L.S.); and where *c.* 500 were present on December 9th (J R.G.); Stanley flooded fields with *c.* 300 on March 1st (G.C.); Otley Chevin—*c.* 300 on March 19th of which one fourth showed ' northern ' plumage, *c.* 450 were there on November 4th (D.B.I.). *Circa* 200 near Harrogate on April 11th and July 24th (P.J.C.). *Circa* 120 flew west at Wintersett on March 14th (G.C.); *c.* 100 were at Barnby Dun on February 15th and April 7th (A.E.P., J.B.); and there were upwards of 100 at Knaresborough S.F. on October 24th (J.R.M.). *Circa* 200 had called at Scaling Dam on August 6th (J.L.), and a similar number were in fields at Kirklington on October 5th (J.P.U.). Smaller numbers were seen at many places.

142. Dotterel (446).—J. C. S. Ellis and A. N. Sykes watched one in a rough field at Ingbirchworth on May 2nd. A juvenile bird gave perfect views down to ten-foot range at Spurn from August 15th to 23rd to many people. One in coastal fields at Redcar on September 12th coincided with an increase in Golden Plovers (D.R and P.S.).

143. Turnstone (402). *Circa* 150 near South Gare on January 11th was the largest number at Teesmouth for many years (B.J.C.). Maxima at Spurn were up to 58 April 4th to 8th, and *c.* 100 from August 15th to 25th. The species was recorded inland at Wintersett, up to two on several days from August 1st to 16th (D.S., A.F., G.C.); at White Holme Reservoir on July 22nd, 26th (three), and August 15th (T.K., A.F.); at Fairburn Ings on July 28th, 29th, and two on August 15th (C.W., etc.).

145. Common Snipe (395).—Ringed as juvenile at Gouthwaite 3/8/59; shot Crossbarry, near Upton, Bandon, Co. Cork, 2/10/59 (H.N.S.). In a small part of the Derwent Valley floods area *c.* 120 were counted on March 1st (M.R.S.). Almost empty reservoirs with wide stretches of mud attracted many snipe in the summer; ' at least a hundred ' about Grassholm and Hury on June 21st (J.K., A.E.F.); 109 at Gouthwaite on August 9th, and 70 or 80 for the rest of the month; at Spofforth S.F. *c.* 100 on September 13th and *c.* 190 on the 19th (M.R.S.); Fairburn counts showed *c.* 100 on September 26th, and *c.* 120 on October 11th (C.W. and others).

147. Jack Snipe (398).—Ringed Knaresborough S.F. 22/2/58; shot Rudding Park, Follifoot, 6/1/59 (H.N.S.). A bird at Knaresborough S.F. on April 19th seemed to be the last inland; but one was near Easington on the 25th; where the first of autumn was noted on September 18th. One at Scaling Dam on the 20th (M.A.), and two at Fairburn on the 23rd were not far behind. Seven were caught near Ilkley in early October (E.S.S.).

148. Woodcock (393).—Was roding at Gouthwaite on February 28th (A.F.G.W.); and at Ilton on March 4th (P.Y.). Occurred at Spurn, single birds on three days in January and on February 15th; and on eleven days from October 10th including three on October 30th and four on November 1st—no doubt others had come in on each day. A nest held one egg near Ilkley on March 28th (H.J.W.)—an earlier one is recorded in *Yorkshire Birds*. Single birds were at Flamborough on March 15th (H.O.B.), October 7th (A.J.Wms.), on October 24th (M.D.), and on November 1st (J.C.P.). One flew in low over the sea at Redcar on November 8th (D.R. and P.S.).

150. Curlew (388).—Ringed as adult Cherry Cobb Sands, 29/11/58; there again 3/10/59 (D. J. Millin). The flock wintering at Gouthwaite numbered *c.* 50 on January 20th, but increased to *c.* 100 by February 23rd; 48 were still present on March 13th (R.H.). 107 were there on December 26th (A.S., M.B.T., A.F.G.W.). Curlews were present in Hornby Park all winter (G.R.P.). Four flew over Otley on January 4th (P.S.), and four flew west from Rodley S.F. on January 11th (A.H., B.L.), and three were near Doncaster on December 13th (R.J.R.).

Spring maxima at Spurn were 68 on February 7th and 70 on March 14th; in autumn 60 on August 14th and *c.* 50 August 27th to 29th. No other concentration reached the estimates of *c.* 600 at Stocks Reservoir on March 7th (D.B.I.); and at Patrington Haven on August 15th (R.J.R.). Large numbers passed at Redcar in the night of August 8th and in the following morning; and at South Gare—they came off the sea and passed inland; smaller passage on July 7th and on other days in August (D.R. and P.S.).

151. Whimbrel (389).—First at Spurn on April 20th, occurred daily through May (maximum ten on the 10th) with odd birds on June 13th and 14th. One occurred

on July 4th and Whimbrels became regular from the 18th with *c.* 50 on August 1st as maximum, and one on September 25th as the last. At Filey one appeared on April 28th and up to nine on four days in the first part of May (T.M.C.); and single birds were at Hornsea on May 13th (M.K.T.), and at Redcar on the 10th and 22nd (D.R. and P.S.).

The peak of the return movement at Redcar came on August 8th-9th when the many Curlews (see above) had Whimbrels with them. Inland records conformed as to dates with the passage periods on the coast cited—at Ingbirchworth, Wintersett, Fairburn, near Gisburn in May; Wath Ings, Scaling Dam, Patrington Haven, Fairburn, Malham Tarn, Stocks Reservoir, Eccup Reservoir, Ingbirchworth, and several Humber areas in July-August. Whimbrels at Patrington Haven on October 11th (A.C.), and Atwick on the 18th (G.R.B.) were the last.

154. Black-tailed Godwit (387).—Occurred in the Spurn area on April 4th to 6th, July 25th; and on seven days from August 2nd to September 20th—ten were in Sharpe's Bay on September 5th which was unusual. Cherry Cobb Sands showed one on April 23rd and 26th (H.O.B.), three on August 16th (A.C.), and four on September 18th (D.J.M.); and Patrington Haven three on August 16th and one on the 20th (L.S.). Single birds off Atwick on July 18th and at Hornsea Mere on August 1st and 8th (G.R.B.) complete the records. D. G. Bell saw one on Seal Sands (Tees Estuary) on April 15th.

155. Bar-tailed Godwit (386).—Spring maxima at Spurn were: 143 on January 1st, 149 February 1st, *c.* 120 February 6th and 7th, 141 on the 9th, 151 on the 18th and 27th, after which numbers dwindled until odd birds became occasional in April. Autumn figures were much smaller and infrequent; 28 on September 15th being maximum until December—*c.* 78 were present on December 31st.

Cherry Cobb had *c.* 50 on April 23rd and 26th; and Patrington Haven *c.* 100 on May 22nd (H.O.B.). Eighty were at Cherry Cobb on July 19th, *c.* 50 on the 25th, and fewer on other days to September 18th (J.C.H.L.). Single birds were at Fairburn on August 11th and September 12th (K.S., A.F.); and at Scaling Dam on August 30th (M.A., D.G.B.).

156. Green Sandpiper (424).—A Green Sandpiper was at Swainby on February 8th; and one was in the Staveley area and at Knaresborough S.F. on several days in March (N.E.A., J.R.M., C.W.). Three near Leven on April 3rd and 4th (J. T. Beal); one at Cherry Cobb, and one near Market Weighton on April 26th (H.O.B.); one at Spurn on May 2nd, and one to three from May 11th to 17th complete the spring records; unless a bird at Hornsea Mere on June 14th was still on its spring journey.

Single birds at Blaxton on November 15th, at Almholme (R.J.R.) and Farnham Mires (P.J.C.) on December 13th, one at Bretton on December 19th (A.N.S., J.C.S.E.), and one near Leven on December 26th (J. T. Beal), appeared to be wintering. The mass of records from shrunken lakes and reservoirs, ings and flashes, rivers and dykes in many places, from late June to early October, included nothing unusual as to date or place, but each helped to give me the overall picture. One was at Rodley S.F. on June 20th (D.A.R.). One came in-off-sea, calling, fairly high, on August 9th at South Gare and continued south-west (D.R. and P.S.).

157. Wood Sandpiper (423).—Occurs more frequently than a few years ago. Spring records were: one Spurn, May 23rd, called and flew in the 'canal zone' (J.C.); one on May 24th-25th at Fly Flatts Reservoir (V.S.C., I.M., C.R.S., T.K., R.H.); one on May 17th and four on the 24th by Scaling Dam (M.A.); and one at Fairburn on May 30th (E.G.).

At Spurn on August 14th a Wood Sandpiper called as it dropped to join three others in the 'canal zone', and later one was seen with a Green Sandpiper; one or more were seen there and by the 'lagoons' until the 27th. Other records were: two at Scaling Dam on June 21st (M.A.); one at Hexthorpe Flash on July 6th to 8th; and one at Blaxton G.P. on July 26th (R.J.R.); one Hornsea Mere July 18th (G.R.B.); two at Wath Ings on July 29th; at Ossett-Healey S.F., one July 27th to 29th, August 3rd and September 2nd to 3rd (A.F., R.W.); two at Fairburn on August 11th (J.K. and A.E.F.); one at Swillington Ing on August 17th (M.D.); and one at Cherry Cobb on August 6th (G.R.B.).

159. Common Sandpiper (421).—Early records were of single birds at Masham (E.E.J.) and in the Trough of Bowland (J.K. and A.E.F.) both on April 11th; at Sutton-in-Craven on April 12th (E.A.G.); and Knaresborough S.F. on April 13th

(J.R.M.). Was last seen near to most breeding areas in mid-September; but odd birds were at Hornsea Mere on September 30th (G.R.B.), on Hawksworth Moor and at Spurn, on October 4th (D.A.S.); one at Goathland on October 6th (T.W.A.W.) and one near Ripon on October 31st (H.L.S.). Gouthwaite Reservoir is both a breeding ground, and a feeding area for birds nesting away from the reservoir, and possibly a calling place for birds on passage. No other water had such ' peaks ' for this species as 52 and *c.* 50 on July 5th and 22nd (A.F.G.W.).

Passage at Spurn was noticeable from May 12th to 29th; and from July 25th (one) on many days to September 13th. There were many occurrences at Hornsea Mere (nine on May 24th (G.R.B.)) and along the Humber Estuary in May; and from June 28th (Flamborough, A.J.Wms.) in the same and other areas of Holderness, with eleven at Hornsea Mere on August 26th (M.K.T.). Fifteen were at Ossett-Healey S.F. on July 22nd (A.F., R.W.). Many called overhead at Patrington at midnight on August 12th-13th (F.J.W.).

161. Redshank (428/30).—Redshanks were present in numbers at Spurn from January to Apri 25th with maximum of *c.* 235 on April 12th; and from mid-July onwards with maxima of *c.* 300 September 4th to 7th, *c.* 500 on September 16th, and *c.* 350 on October 19th. Breeding status was as usual.

162. Spotted Redshank (431).—Occurred at Spurn on May 2nd and 9th; and almost daily somewhere between Easington and the Point from August 21st to September 21st, with up to four on a few days. The species was recorded at Scaling Dam (June 21st, three September 6th, one October 24th (M.A.)). Deerhill Reservoir, Wintersett, Mickletown Flash, Swillington Ing (one June 28th in summer plumage (G.C.)), and at Fairburn on various dates (one on October 5th (A.F., R.W.)). Single birds at Patrington Haven and the Easington Lagoon in winter plumage on March 28th were unusual. Patrington Haven also had birds on June 24th (one) (A.C.) and two on August 21st (R.H.); and Cherry Cobb singles on August 8th and September 4th. The species occurred only in coastal and Humber estuarial areas, and about the central Aire-Calder area, except for one at Farnham G. Pit on September 15th (I.D.).

165. Greenshank (432).—There were some 20 spring records, one at Ossett Spa S.F. on March 1st being remarkable (A.F.). The others ranged from May 8th to 15th at Easington Lagoons to a batch at the end of May into June. More than half were in the Spurn-Patrington Haven-Cherry Cobb area to Boynton. A few referred to Wath Ings, Wintersett, Fairburn; and one to Cold Edge Dam.

At Spurn in autumn appearances began on July 18th, were spasmodic for a time, then daily from August 15th to the end of September, with odd birds on a few days to the last on October 22nd. Six on August 31st was the maximum. Elsewhere in the East Riding some 30 records covered the coast up to Filey, and the Humber up to Cherry Cobb Sands. One at Hornsea Mere on June 14th (G.R.B.) was early (if not late !). The next came on July 11th at Flamborough (A.J.Wms.) and Wilfholme (River Hull) (H.O.B.). The maximum occurred on August 21st with 15 at Patrington Haven (R. Holmes). One was at Cherry Cobb on October 11th (G.R.B.).

Scaling Dam had Greenshanks regularly during August into September with maximum of four (M.A., D.G.B.); at least six were in the Teesmouth area on August 9th (D.R.S., D.G.B.); and one was near Catterick on September 5th (V.F.B.). Nine or more West Riding reservoirs, the Dearne Valley, and the Calder-Aire Ings, a streamside near Horton-in-Ribblesdale, waters in the Doncaster area, Settle and Barnoldswick waters, all showed Greenkshanks in the period July to October. Eleven at Swillington Ing on August 17th (M.D.) was the maximum. One was at Eccup on October 18th, and one, the last, was there on November 2nd (G.R.N.). Was this wide distribution of visiting Greenshanks due to shrinkage of waters everywhere caused by the long drought, which produced more mud and areas of shallow water, in which they like to wade, and so induced them to stay ?

169. Knot (403).—Up to *c.* 3,000 were recorded from January 1st to 4th at Spurn. On January 24th and 25th, high-tide movements towards Lincolnshire were estimated at *c.* 8,000 birds. Numbers recorded in February and after were smaller and fell to very few in April, and on a few days in May. Re-appeared in mid-July, with large numbers in September (maximum *c.* 3,500 on the 19th); fewer in October, with the autumn maximum on November 14th (*c.* 5,000). *Circa* 6,000 were at South Gare on January 11th (B.J.C.); and *c.* 1,000 on Redcar rocks on November 28th (D.R. and P.S.). Small parties were seen on various parts of the coast in autumn.

Inland records were unusually numerous for this coastal species, which, however, is known to reach and cross the Pennines on occasion. The most remarkable came

from White Holme Reservoir with 25 on August 28th and one on the 29th (V.S.C.). Single birds occurred at Fly Flatts Reservoir on June 7th (D.W.) and September 22nd; one at Deerhill Reservoir, Huddersfield, on August 16th (C.D.), Fairburn, August 25th (G.R.N.), Gouthwaite Reservoir, three on July 17th-18th, one July 26th, 29th and August 26th to 30th (A.S., M.R.S., A.F.G.W.); Fairburn Ings, August 25th Almholme, September 11th (R.J.R.); Langsett Reservoir October 18th (G.A.); Scaling Dam November 8th (M.A.); one Ossett Healey December 6th (R.W.).

170. Purple Sandpiper (415).—Winters on rocky parts of coast. One at Filey Brigg on July 10th and ten on the 31st were the earliest of autumn (T.M.C.). Maxima were: 31 Filey Brigg on January 31st (R.H.A.) and *c.* 40 on December 17th (S.M., R.E.H.); 25 Bridlington on December 24th (S.M.); 22 Staithes on March 1st (D.G.B. and others). At Spurn one on March 30th and August 29th to September 1st, two on October 24th, one on November 3rd; and one December 26th to 30th, were all. One was at Redcar on October 29th (D.R. and P.S.).

171. Little Stint (407).—Was recorded at Spurn on August 20th (Easington Lagoons), September 4th, 9th, and 23rd to 28th; and October 4th. One was by Hornsea Mere on September 12th (G.R.B.). Inland, eight were at Fairburn on June 16th (R.F.D.); two Blackmoorfoot on August 16th (E.C.J.S.); one at Winterton Reservoir on September 11th (M.N.R.); two at Chelker Reservoir with Dunlins on September 4th (Mr. Porter); one Woodhouse Mill on September 5th (R.G.H.); one Scaling Dam, September 27th (D.G.B.); one Summer Lodge Tarn, October 18th (J.K. and A.E.F.); one at Fairburn on October 22nd and 25th (D.A.S., C.W., B.H.).

173. Temminck's Stint (409).—A very small wader at Fairburn on June 17th was believed to be this species (C.W., B.H.).

176. Pectoral Sandpiper (411).—One occurred at the Fairburn Ings Nature Reserve from September 17th to October 12th, and was seen by R. F. Dickens, C. Winn, G. R. Naylor, M. Densley, J. Roberts, A. Frudd. A full description was taken, and the record has been accepted by the Rarities Committee of *British Birds*, which saves me from need to publish fuller details. It called a low-pitched nasal trill deeper than Dunlins'; was smaller than Reeve but larger than Dunlin, stood erect; the throat and upper breast were buffish, ending abruptly in the white of lower breast and belly.

178. Dunlin (404/5).—Ringed Revtangen, Norway, 28/9/57; trapped Cherry Cobb Sands, 6/11/59 (D. J. Millin). Ringed Spurn, 12/7/58; Franceville (Calvados), France (49° 17′ N., 0′ 12° W.), 2/5/59.

Spring maxima at Spurn, *c.* 1,800, occurred on March 1st, but the species remained numerous until late May. Periods of autumn maxima began from September 2nd to 10th, September 21st to 30th, and October 17th to 24th (*c.* 2,000 on the 20th). *Circa* 2,500 at Cherry Cobb on May 21st, and *c.* 3,000 at Patrington Haven on the 22nd (H.O.B.) were much larger than Spurn figure on those dates. On July 22nd, when *c.* 1,000 were at Cherry Cobb, numbers at Spurn were beginning to grow. Resting places at high tide can vary from day to day around an estuary.

Several pairs were known to breed successfully in Pennine areas; and display as if with young by Dunlins was noted in two areas of the north-east where proof of breeding has long been lacking.

Occurrences of Dunlin by moorland waters are often difficult to interpret. *Circa* 30 at Fly Flatts Reservoir on May 28th (T.K.) were probably passage migrants (Ringed Plovers, etc., were also present); but 21 in a flock on June 22nd (R.Cr.) could have been local birds with flying young; as could *c.* 50 by the two Baldersdale waters on June 22nd (J.K. and A.E.F.); and 26 at Gouthwaite on the 21st (A.F.G.W.). A month later on July 22nd *c.* 20 had assembled at Wintersett Reservoir where mud after draining continued to attract waders until autumn.

Dunlins were reported from some 30 waters inland from *c.* 80 at Bubwith Ings on February 22nd (A.F.G.W.) to the above-mentioned, and to 12 in the Dearne Valley on August 8th (A.A.), and 19 at Scaling Dam on September 20th (M.A.). Figures generally were much smaller. Dunlins at Swillington (12 on August 10th (A.H.B.L.)) and Fairburn (10 on August 5th (C.W., etc.)) are usually thought to be passage migrants.

179. Curlew-Sandpiper (406).—A most extraordinary number was recorded compared with the few of most years. At Spurn, two on August 1st, singles on August 16th and 18th, and two on the 26th, were followed by records daily from September 1st to 21st, on three days to the 30th, and one on October 4th and 31st. Ten on September 2nd was the maximum.

To list the inland occurrences is impossible. They came on many days from 14 waters: Scaling Dam, Hornsea Mere, Cherry Cobb Sands, Patrington Haven, the Humber near Melton; and in the West Riding from Fairburn, Ossett S.F., Wintersett, White Holme, and Gouthwaite Reservoir; Farnham G.P., and a water near High Eldwick. Dates ranged from July 25th, through August and September to November 2nd at Eccup (G.R.N.); maxima were: up to nine at Fairburn September 1st to 9th (C.W. and others); six at Wintersett on September 1st (M.N.R.); and thirteen by the Humber near Welton on September 1st (J.C.H.L.).

G.R.B. spotted three passing south off Hornsea on August 9th. Most were very tame: three at White Holme Reservoir from September 1st to 5th were approached to within 8 yards (V.S.C., I.M., R.Cr. and others).

181. Sanderling (416).—At Spurn 44 on February 18th was the maximum until *c.* 100 appeared on March 27th; in autumn numbers were never large, but reached 45 on August 29th and exceeded 20 on several days.

At Redcar, up to 120 was usual to end of March, afterwards *c.* 25 on May 16th and 14 on the 26th. Regularly in autumn from July 21st, with increase to *c.* 130 on September 24th, *c.* 180 in October, and maximum of *c.* 300 on November 21st (D.R. and P.S.).

Occurred by six waters inland. One at Fairburn on May 10th (C.W., etc.) was the only one of spring. All others were in August to September 5th at Blackmoorfoot, Chelker, White Holme, Gouthwaite and Wintersett.

184. Ruff (417).—There were *c.* 30 records of Ruffs in the East Riding excluding Spurn; several at Scaling Dam in the North Riding; and *c.* 40 in the West Riding. Two recorded north of Kilnsea on March 30th and April 11th; and one passing south off Hornsea on April 26th, were all of spring. The period covered by the rest ranged from June 7th off Hornsea (G.R.B.), June 12th at Blaxton (R.J.R.); through July (at least seven records), August and September, to two at Fairburn on October 3rd (M.D.), one at Sunk Island on October 11th (A.C.), records at Spurn on October 18th, 19th and 25th; one at Hornsea Mere on October 31st, November 1st and 28th (G.R.B.). Other places where Ruffs occurred were Wintersett, White Holme and Gouthwaite Reservoirs, Denaby Ings and Hexthorp Flash, Knaresborough and Ossett-Healey S. Farms, Brandesburton, River Hull near Wilfholme, Hornsea Mere, Brough Airfield, Patrington Haven and Flamborough. No more than two were recorded on one day anywhere except at Flamborough (three on September 14th and four on the 19th); and at White Holme Reservoir (up to four August 30th to September 8th); and three at Scaling Dam on August 26th (D.G.B.). At Spurn was recorded on July 18th and 25th and on twelve days from August 21st to September 21st and on October 18th, 19th and 25th.

193. Arctic Skua (493).—The Holderness coast about Hornsea showed a few Arctic Skuas on a number of days from the first at Atwick on April 26th, and several in May to mid-August (G.R.B.). Five were seen from Flamborough on October 11th (H.O.B.). Two flew inland at Atwick on August 21st (M.K.T.), and one at Cherry Cobb Sands on September 4th (D.J.M.). One at Patrington Haven on August 29th flew across the Humber (R.J.R.). A few were seen off Filey including five on October 11th (R.H.A.).

Many were seen at Spurn. Seventy-seven passed on August 26th, 18 being in one party. On September 13th 235 flew south and four flew north. Entertainment was derived on October 27th and 28th from watching party after party of Kittiwakes passing south, most parties having one or two skuas in attendance; a single skua, and then two together, attacked Kittiwakes. Several larger skuas were probably Bonxies. Passage was noted at Redcar in August; one flock of 16 passing S.E. and five N-W. on August 28th (D.R. and P.S.). *Circa* 20 were off South Gare on September 17th (E.E.J.).

194. Great Skua (491).—Single Bonxies were seen at Spurn on 17 days from August 1st to October 19th; and up to five on six more days; and fourteen on September 13th—a day of much coastal passage. The heavy ringing of October 11th (298 birds caught) left little time for aught else, but in thirty minutes C. Winn saw eight Bonxies pass and 17 Arctics. A few occurred at Redcar and South Gare on August 28th to 30th, and on September 13th, 17th and 26th (D.R. and P.S., E.E.J.). Single birds were off Hornsea on May 8th, Atwick on September 27th and 28th (G.R.B.), and Flamborough on October 11th (A.J.Wms.). One ' terrified Herring Gulls ' on March 18th at Staithes (W.K.R.).

195. Pomarine Skua (492).—A dark-phase bird with Arctics on July 18th showed its twisted tail; as did a pale-phase bird at Atwick on August 8th (G.R.B.).

Two ' probables ' at Spurn on September 13th (when many Arctics were passing, were not certainly identified. Two were with Arctic Skuas on October 11th at Filey Brigg (A.J.W., R.H.A., E.W.)—the day when heavy trapping occupied almost all the time at Spurn. A definite, and a probable Pomarine were off Redcar in the north-west gale of October 28th (D.R. and P.S.). A skua at Eccup on November 4th appeared bigger than a Common Gull and was possibly this species (G.R.N.).

196. Long-tailed Skua (494).—Two at Redcar on August 30th were probably the same birds seen off Hartlepool on the same day. Two were also off Redcar on September 26th. (D.R. and P.S.). In each case an adult was with an immature bird. In the big passage of skuas at Spurn on September 13th, a small bird flying with a group of six Arctics was probably this species.

198. Greater Black-backed Gull (486).—*Larus marinus* is still mainly a sea bird, although more frequent inland in winter than at one, not very distant, time. Sixty-one at Scaling Dam on November 15th (M.A.), 40 at Swinsty Reservoir on November 22nd (P.S.); and *c.* 60 at Eccup on December 5th (G.R.N., K.B.) were noteworthy.

Always present at Spurn (and elsewhere on the coast)). The spring maximum was *c.* 130 on March 20th. The few in early summer are mainly immature birds. Numbers began to increase in August; and jumped from *c.* 150 to *c.* 500 on August 29th. Numbers then remained high, and increased to a maximum of *c.* 1,500 on September 17th, when 1,310 were counted passing north, 90 per cent. adults, from 06.15 hours to 13.10 hours (J.C. and others). On the next day 878 were similarly counted nearly all adults. On the 17th there was a great concourse in the Tees Estuary estimated at *c.* 5,000 (E.E.J.). On October 5th there seemed to be few in the estuary at Spurn, but 683 flew N-NE. between 06.30 and 07.20 hours (J.C.). Up to *c.* 850 were noted on October 18th; and one immature bird had two or three white primary feathers in each wing, making it look quite attractive.

199. Lesser Black-backed Gull (484/5).—

Ringed, Roeburndale, 22/7/56; Agadir, Morocco, 4/12/56 (R.F.D., P.C.L.).

Ringed, Roeburndale, 29/7/56; Laneshaw Bridge, near Colne, 27/6/59 (R.F.D., P.C.L.).

Ringed, Roeburndale, 27/7/58; Cambados (Pontevedra), Spain, 8/12/59 (R.F.D., P.C.L.).

Ringed, Roeburndale, 27/7/58; Villa do Conde (Douro Litoral), Portugal, early Feb., 1959 (R.F.D., P.C.L.).

Ringed, Roeburndale, 27/7/58; Buarcos, near Figueira da Foz (Beira Litoral), Portugal, 2/1/59 (R.F.D., P.C.L.).

Ringed, Roeburndale, 27/7/58; Lavradio, Barreiro (Estremadura), Portugal, 12/5/59 (R.F.D., P.C.L.).

Ringed, Roeburndale, 5/7/58; Burmes (Vizcaya), Spain, 11/7/59 (D.B.I.).

Ringed, Roeburndale, 5/7/59; Rio del Ferrol, Spain, 23/9/59 (D.B.I.).

Ringed, Roeburndale, 25/7/59; between Rivers Odiel and Guadalquiver (Huelva), Spain, 4/11/59 (D.B.I.).

Ringed, Roeburndale, 5/7/58; Buèie, Spain, 23/3/59 (D.B.I.).

Ringed, Roeburndale, 29/7/58; Port-Etienne, Mauritania, end Feb., 1959. (D.B.I.).

Ringed, Roeburndale, 5/7/58; 30 miles SW. of Rio Drae-Rio de Ora, Africa, 7/5/59 (D.B.I.).

Ringed, Roeburndale, 29/7/58; Arnecife, Lanzarote, Canary I., 20/1/59 (D.B.I.).

Ringed, Roeburndale, 22/7/56; Puebla del Rio (Seville), Spain, 3/3/57 (R.F.D.).

The Roeburndale colony remains similar to 1958; *c.* 20 pairs of *Larus marinus* nested in it (D.B.I.).

Fairburn had *c.* 40 on January 3rd and *c.* 100 was exceeded on some June days; but fewer in March when *c.* 100 were in the Lingerfield area (A.F.G.W.). *Circa* 100 such June birds troubled the Black-headed Gulls at Blaxton and may have caused some desertion (A.E.P.). Numbers roosting at Eccup reached *c.* 2,500 on September 4th; only *c.* 1,200 on the 5th (K.B.). There were never many at Spurn; *c.* 30 on August 25th was unusual. A few Scandinavian birds occurred.

200. Herring Gull (482).—Much more frequent and in larger numbers at Spurn than the preceding species. A count of birds passing on January 4th totalled 670, much the highest figure of the year, but *c.* 200 was reached on February 13th,

March 7th, and December 12th and 26th. On October 18th, a major day for *L. marinus*, 147 *argentatus* also occurred. At least ten pairs nested on roof tops at Staithes (D.R.S., W.K.R.). *Circa* 200 came in to roost at Fairburn before dusk on January 13th (A.F.), and occurred in some numbers from February 16th to 25th with *c.* 250 as maximum on the 16th; otherwise numbers were few (C.W. and others).

A dead Herring Gull at Eccup on December 26th was thought to be *L. a. omissus* Pleske from dark grey mantle and white-tipped second primary (M.D., K.B.).

201. Common Gull (481).—Reported breeding by a pair at Bempton was quite circumstantial but was unconfirmed. At Spurn *c.* 800 feeding on the sea-side between the Lighthouse and the Point on January 11th, and 1,465 counted passing south on May 2nd, were the largest numbers on a day in the year, during which some were always present. On August 29th, 1,028 flew across the Humber to Lincolnshire at Patrington Haven between 7-40 and 8-25 p.m. (R.J.R.).

202. Glaucous Gull (487).—The usual odd birds, mostly juveniles were seen at Scarborough in the early and late months (A.J.W.), e.g., juveniles on February 7th (T.M.C.) and from November 20th to December 10th (R.H.A.). Single immature birds were seen at Flamborough on March 1st and April 4th (A.J.Wms.), and March 30th (H.O.B.). A gull at Eccup on November 29th was like a large heavy Herring Gull without black tips to wings (G.R.N.).

203. Iceland Gull (488).—A sub-adult was seen intermittently throughout February by Staithes fishermen, and confirmed by W. K. Robinson; and possibly the same bird was on Coatham Sands on February 11th and 13th, and was seen there again on March 29th; and at Staithes on March 19th, April 29th and 30th. Of Herring Gull size, the body and wings were uniform off-white, and the bill slender. More than one bird could have been involved.

The white edgings to the primaries of a gull at Eccup on December 18th was seen clearly; it was just smaller than Herring Gulls, and paler grey on the wings (G.R.N.).

A description taken of a gull near the sewage outfall at Hornsea on May 31st, June 5th and 14th, by G. R. Bennett included: approximate to Herring/Lesser Black-backed Gull in size, lack of mirroring in wing-tips, silver-grey tone of wings relieving the general all-white effect, extension of wings beyond the tail when bird stood, red orbital ring to yellow iris, yellow bill with reddish tips to mandibles, legs flesh. He saw the bird at close quarters. It was an adult.

Immatures were at Scarborough on January 6th (A.J.W., T.M.C.), two on February 15th, one March 1st and 12th (T.M.C.).

205. Mediterranean Black-headed Gull (479).—A gull sized as *ridibundus* with black head, heavy bill, and all-white primaries flew south at Spurn on May 2nd (C. Winn, K. Hardcastle); it was the day of the heaviest passage of Common Gulls.

207. Little Gull (477).—Twenty-two were reported, mostly immature:

5 at Spurn on June 28th, September 5th, October 25th, October 31st (2).
6 at Bridlington in December, including a dead juvenile on the beach.
1 at Brough Haven on December 25th.
1 at Hornsea Mere, August 20th, and 1 dead November 21st.
3 at White Holme Reservoir, August 19th to 25th (ad. with 2 juveniles).
1 at Eccup, October 7th.
1 at Swillington Ing, December 12th.
1 on River Don near Swinton, November 21st.
3 on Tees Estuary, July 5th (2) and August 2nd.

208. Black-headed Gull (478).—

Pull Ringed, Strakonice, S. Bohemia (49° 15′ N. 14° 15′ E.), 11/6/59; found dead Knaresborough S.F., 24/10/59.
Pull Ringed, near Norrköpping, Ostergotland, Sweden, 23/6/58; at Hoyle Mill, near Barnsley, 14/2/59.
Pull Ringed, Malda, near Stavangar, Rogaland, Norway, 31/5/57; dead, Ardsley, near Wakefield, 24/1/59 (R.H.).
Pull Ringed, Carperby, 17/7/58; West Ewell, Surrey, 10/2/59 (Harrogate N.S.).
Pull Ringed, Amager, near Copenhagen, Denmark, 9/7/57; Middlesbrough, 21/10/59 (had collided with a building in strong wind) (I.F.S.).
Pull Ringed, near Askrigg, 28/6/59; Holme, near Carnforth, 2/9/59 (E.E.J.).
Pull Ringed, Haworth, 24/7/50; Barnston, near Heswall, Wirral, early April, 1959 (R.F.D., P.L.).

Pull Ringed, Haworth, 24/7/50; Mersey Shore, Wirral, 16/1/59.
Pull Ringed, Carperby, 27/6/59; Kirkby Stephen, 21/9/59 (D.B.I.).
Pull Ringed, Askrigg, 27/6/59; Skinningrove (Saltburn), 20/7/59 (D.B.I.).
Pull Ringed, Carperby, 27/6/59; Middlesbrough, 15/8/59 (D.B.I.).
Pull Ringed, Swillington, 6/7/52; near Preston, Lancs., 7/9/59 (D.B.I.).

Up to 8,500-10,000 came in to roost on the Derwent floods on March 1st in a steady stream from 4 to 5-45 p.m.; many were there before counting began. Up to *c.* 900 roosted at Gouthwaite for a short time in early March (A.F.G.W., M.R.S.).

Most breeding colonies suffer from egg-raiders; and reduced water-levels made them very vulnerable this year. At Blaxton G.P. the arrival of *c.* 100 Lesser Black-backed Gulls late in the breeding season was an added hazard; and only seven young could be found on July 26th (R.J.R., A.E.P.). The Fly Flatts colony persisted although ' completely robbed ' for years (T.K.). A small colony of a dozen pairs near Market Weighton probably began in 1956 (B.S.P., E.B.B.).

Flocks began coming off the sea to pass westward at Redcar in October and continued into November (D.R. and P.S.). A few began to come in to roost on Leighton Reservoir in September-October, and increased until on December 28th 2,192 were counted (E.E.J.

211. Kittiwake (489).—Occurred inland at Fairburn, single birds on May 12th, July 30th and August 9th (C. Winn and others); and at Eccup Reservoir, February 22nd, an adult and remains of a juvenile found; February 25th an adult and a juvenile; a second-winter bird from March 1st to 6th; and a juvenile flying north-west on October 28th (G.R.N.).

One at South Gare on September 27th wore two rings, one dull, one bright (D.R. and P.S.). Kittiwakes are seldom recorded in numbers at Spurn. On October 27th *c.* 2,000 passed south in a westerly wind during the afternoon, with skuas in attendance, and Gannets moving south, too. On the next morning, October 28th, the passage continued and 2,203 were counted from 11-40 to 12-10 a.m. by Messrs. Sterne, Godfrey and Critchlow. It was estimated *c.* 10,000 Kittiwakes passed.

Kittiwake movements are difficult to interpret. On February 21st *c.* 2,000 passed south in 45 minutes at Hornsea (R.H., A.V.); on the next day a pronounced movement north was noticed at Filey (T.M.C.)—some of the same birds could have been involved. ' Movements appear to be influenced . . . by migrations of mackerel and herring ' (*Handbook*). From May 10th to 28th, on twelve days, adults and juveniles (presumably of the previous year) were noted passing north off Hornsea—most numerously on May 17th, with 1,224 in three hours (G.R.B., M.K.T.). 2,898 mainly, adults, passed south on June 20th. Large numbers moved north at Flamborough on September 14th and south on October 11th (A.J.Wms.). At Redcar, south-east movement was seen on October 10th and 18th, north-west movement on October 27th and 28th; were the movements simply those of the same birds changing temporary feeding-grounds?

212. Black Tern (462).—The spring passage could be said to begin with one at Eccup on April 26th (K.B.). No other was seen until May 9th, whence, until May 24th, birds occurred on ten inland waters and at Spurn and Teesmouth. The larger numbers were at Fairburn, 18 on May 11th (R.F.D. and B.L.), and 38 on the 23rd (C.W.); 9 at Gouthwaite on May 11th and 15 on the 23rd which only stayed for a few hours (A.S., M.B.T., A.F.G.W., D.S.); 17 in the Tees Estuary on May 22nd (J.H., A.V., I.McK.); 9 at Wintersett on May 23rd (A.F., J.M.); 22 at Spurn on May 23rd; 14 at Hornsea Mere on May 23rd-24th (G.R.B., M.K.T.). The movement clearly had two main phases. Stragglers were three at Locker Tarn on May 27th (Dr. Adamson); one near Bingley on June 7th (J.K.F.); and one Scaling Dam on June 21st that was seen to catch a butterfly (M.A.).

The autumn passage was comparatively small, beginning with one at Swillington on July 18th (R.W.), and one at Spurn on July 26th. Fairburn had 13 on August 19th (C.W. and others), White Holme Reservoir up to 11 from August 19th to 25th, all immature birds (D.W., I.M., seven others); and Hornsea Mere up to eight on seven days from July 31st to September 12th (the eight was on August 23rd) (G.R.B., L.S., B.S.P.). Cherry Cobb Sands showed two on August 17th (J.C.H.L.).

217/18. Common and Arctic Terns (469/470).—The first ' comic ' came to Spurn on April 5th, an early date. One was at Atwick on April 12th (G.R.B.). Passage was normal with many more in autumn than in spring. Arctic Terns were identified more often than Common. Parties of five and ten flew east at Cherry Cobb Sands on May 21st (H.O.B.). Inland records were few; at five waters on nine

days in May-June with seven as maximum, Fairburn, May 10th (E.G.). A very few wandered inland in July to September, including several at Fairburn and Eccup. On July 26th, 497 passed north at Spurn, all identified being Arctics; and some were seen daily until early October, the next maximum being *c.* 100 on August 14th. One occurred on October 31st. Numbers passed at Redcar from early August to mid-September, with a juvenile on October 28th (D.R. and P.S.). Two were at Atwick on October 25th (G.R.B.), and one at Flamborough on December 6th (A.J.Wms., H.O.B.).

219. Roseate Tern.—One gave good views among other terns at Spurn on September 26th (T.D.B., A.H.B.L.).

222. Little Tern (471).—Daily at Spurn from April 29th with 58 on June 27th. The last was seen on September 16th. Bred, eggs seen and young on the wing; everyone was asked to keep away from the ternery. The first at Redcar was seen on May 7th (D.R. and P.S.); and at Hornsea on May 3rd (G.R.B.). No more than four were seen on the coast north of Easington, in May or August.

223. Sandwich Tern (467).—The first (two) appeared off Atwick on April 5th (G.R.B.). Two on April 25th were the first at Spurn; and 15 passed north at Atwick on the 26th (G.R.B.). Two were off Redcar on May 1st, where the species occurred more frequently through the summer months than other terns (D.R. and P.S.). Ninety-six passed south on September 17th in $4\frac{3}{4}$ hours (E.E.J.). Maximum at Spurn was reached with *c.* 300 on September 6th, but numbers had occurred from July 29th and continued to late September with two on October 13th as the last. One was off Filey Brigg on October 17th (R.H.A.) and on October 25th (E.G.); and at Hornsea on the 25th (G.R.B.). A probable on July 1st at Ilton (P.Y.) was the only one seen inland. One was at Welton Water on August 30th (B.S.P.).

224. Razorbill (496).—Auks over the sea, or even on the Humber Estuary, are often too far away for certain identification; of 81 auks off Spurn on September 16th five were recorded as Razorbills; and of 118 on the next day, none, but some were probably included. These were maximum figures.

226. Little Auk (502).—Seen from October 10th (three off Hornsea (G.R.B.)), to the year end, at a number of dates and places. Fifty-two moved north at Hornsea on October 31st, and 45 on November 1st, when two flew inland (G.R.B.). On October 31st 57 occurred off and about Spurn, and fewer on November 1st and 2nd; with one on November 22nd, the only other there recorded. Twelve flew north at Scarborough on October 31st (K.H.). Three flew north-west at Redcar and seven at South Gare on October 31st and ten on November 1st. Odd birds occurred elsewhere about the same time (one in Hull and two at Faxfleet). A male at Castlehaw Reservoir on October 14th had head injuries (W. P. B. Stonehouse). November 28th at Patrington Haven and Hornsea, and December 31st at Redcar, were the last dates.

227. Guillemot (498/9).—May 30th was an early date for two chicks to be seen at Flamborough. A group of adults with three chicks on August 3rd at Bempton suggested possible illegal egg-taking of first layings (H.O.B.).

229. Black Guillemot (501).—Occurred in Filey Bay on October 31st and November 21st (R.H.A.); near Scarborough on November 1st (K.H.); and one that could not fly properly stayed on Peasholm Lake, Scarborough, for about ten days from December 17th (A.J.W.).

230. Puffin (503).—An immature bird was found dead in Roundhay Park, Leeds, on November 13th (J.A.).

232. Stock-Dove (381).—Forty-four moving south at Spurn on February 17th was unusual, although the species occurs oftener than a few years ago. Some passed on November 15th, 21st and 28th during the big passages by Wood-Pigeons. On November 28th, 98 flew south over the sea near Atwick, and four on the 29th (G.R.B.).

233. Rock Dove (382).—A flock of eleven about the cliffs at Cloughton Wyke in December (R.S.P.) may have been migrants.

234. Wood-Pigeon (380).—On November 15th, 413 Wood-Pigeons passed at Spurn mainly between 9 and 10 a.m. On the 21st the day's estimate for this species was 3,100, many of which were on the fields to the north of Warren Cottage; some 200 ' domestic ' pigeons also. A similar movement was reported by L. Clubley on the previous day, when large numbers were on fields up to Easington and beyond. On the 28th again Wood-Pigeons were passing south all day, from singles to one flock of 110. The day's estimate was 1,410. Some came off the sea and turned south on reaching the peninsula; one flew up the Humber. Some ' domestics ' travelled with the wild birds. 146 flew south off Hornsea also on November 28th (G.R.B.). *Circa*

260 on December 5th was the last large estimate up to 250 of which flew south between 08.00 and 09.10 hours.

Large numbers were in the Masham and other areas feeding on the unusually good crop of acorns during November.

Pull ringed Lower Dunsforth, 21/7/57; Bramham Park, 25/2/59 (Harrogate N.S.).

235. Turtle Dove (383).—April 11th at Atwick (G.R.B.) and April 23rd at Sleights (T.W.A.W.) were early dates. One was at Swillington Ing on September 29th (G.R.N.). A Turtle Dove near Rise, East Riding, on November 17th (G. Bird) was abnormal. Was not seen at Spurn until May 23rd and was not recorded in the autumn.

[**Collared Dove.**—Two doves in S. J. Wells' garden at Chapel Allerton, Leeds, on April 18th, of a ' dusky, smokey brown ' colour were smaller than Stock-Dove, and called in three syllables with the last note extended. A neighbour said the birds had been about for some ten days previously, but they could not be found again].

237. Cuckoo (240).—First noted at Haxby (F.J.), and in Harrogate (J.R.M.), both on April 15th—reached Masham on the 16th. Present at Spurn from April 25th to the end of May; and spasmodically afterward to September 3rd (a juvenile). One was near Atwick on October 10th (G.R.B.). Numerous near Doncaster (R.J.R.); and in other areas more have been noted than in 1958.

241. Barn Owl (254).—Seen hunting in daylight in January to February in several places. Recorded a little more frequently. One of the Dark-breasted form (*T. a. guttata* Brehm) came on to the Humber (Spurn) pilot cutter on October 6th; and being unable to fly was taken ashore on the 8th and seen by G.H.A. (J.R.).

246. Little Owl (249).—Status normal. Occurred in moorland areas—Scaling Dam, June 24th (Mrs. A. L. Cooper), Ilton Moor (P.Y.), and Middlesmoor. Long known to breed in the Barnsley area, two occurred at Ouselthwaite for a week from November 21st (C.A.W.). Recorded at Spurn on nine days from September 20th.

248. Long-eared Owl (250).—Recorded at Spurn on October 10th and 17th. On August 26th the fact that one roosted in a bush caused doubt if it would not be this species although thought to be the next. A pair inhabited a wood west of Sheffield in the early months (R.G.H.).

249. Short-eared Owl (251).—Recorded at Spurn on 13 days from February 1st to April 30th, on July 5th, August 23rd, and on seven days from October 10th to November 14th. One came on to the Humber pilot cutter on October 9th with a small bird in its foot; and was later released in a Hull park (J. Raddings, G.H.A.). Shortage of voles caused scarcity in one known breeding area; bred in at least one other; and was recorded from a number of others. Short-eared Owls at Flamborough on March 27th (H.O.B.), October 11th (A.J.Wms.) and November 1st (H.O.B.), when one was also on a cliff top south of Withernsea (B.S.P.), and one at Atwick on December 27th (G.R.B.) were all likely to be migrants.

252. Nightjar (227).—Nesting proved in Nidderdale, Wharfedale and Masham-Ripon areas; and heard in two places in the north-east, and in Airedale and Wharfedale, and Ribblesdale.

255. Swift (225).—

Ringed, Harrogate S.F., 11/6/58; retrapped 20/5/59
Ringed, Harrogate S.F., 17/5/58; retrapped 20/5/59
Ringed, Knaresborough, S.F., 11/5/58; retrapped Harrogate S.F., 20/5/59
} Harrogate N.S.

Ringed, Knaresborough, 24/7/56, retrapped R.S.F., 1/6/59 (H.N.S.).
Ringed, Ben Rhydding, 13/5/58; retrapped Burley, 13/5/59 (W.N.S.).

The earliest records came from Wetherby (J.W.) and Harrogate (M.R.S., A.F.G.W.) on April 24th. Hornsea Mere had two on April 25th (G.R.B.); and Spurn had two on April 26th, and ones and twos appeared at several places to May 2nd when *c.* 50 appeared at Fairburn (C.W.). From May 5th to 7th the influx became general. Large numbers were at Hornsea Mere on May 23rd and 26th (*c.* 600 and *c.* 900 (G.R.B.)).

Swifts at Spurn are puzzling. Were those recorded on June 6th and 7th (331 and 273) migrants of spring; and those of June 27th and 28th (336 and1,185) the first of autumn ? A few had passed between these periods; and a few continued to pass to July 5th (962) and 18th (2,089)—the year's maximum figure. Afterwards *c.* 100 on August 15th and 264 on the 16th, and *c.* 200 on August 24th and 25th were the last considerable passages. Twenty-five and twelve passed south at

Bridlington on these last two days (M.D.). Two at Spurn on September 10th were the last. One was at Redcar on September 6th (D.R. and P.S.).

G. R. Bennett counted Swifts passing at Atwick on July 12th, reaching the respectable total of 6,248 in four hours; how many passed at Spurn that day we do not know, the observatory was not manned, but on the 18th, when *c.* 2,000 passed at Spurn, G.R.B. counted 1,243 at Atwick, some 25 miles to the north of Kilnsea.

Departure from breeding areas was early. *Circa* 600 had gathered at Fairburn on July 20th, and 62 were there on August 16th when most colonies had been reduced to the last odd birds, or none.

258. Kingfisher (234).—Known to nest in several places and seen in a number of others. One appeared on the Spurn ' canal zone ' on March 14th.

261. Hoopoe (232).—Was seen at three places in spring: on a lawn at Nunthorpe on April 24th to 26th (K. Schellenberg per D.G.B.); at Seaton near Hornsea Mere from April 17th to 22nd (E. Cooper and others per G. Bird), and at Cherry Cobb Sands on May 13th (J.C.H.L.).

262. Green Woodpecker (235).—Status slightly sub-normal.

263. Great-Spotted Woodpecker (236/7).—One at Duncombe Park on April 19th was watched begin to excavate in a beech trunk. Horizontal and vertical ' gauge lines ' in the form of a cross were first chipped out, then the corners (C. D. Milne). Status normal; but in Roundhay Park, Leeds, the keepers knew up to eight nests (R.V.J.).

264. Lesser-Spotted Woodpecker (238).—Recorded near Barnsley, Apperley Bridge, Roche Abbey, Ripley, Harewood Park, Ilkley, Bretton, and Hornby Park, Copgrove, and possibly Sawley.

265. Wryneck (239).—Up to four recorded at Spurn from August 21st to 25th; and single birds from September 4th to 10th.

Ringed, Spurn, 7/9/58; Tjåmotis (Lapland), Sweden (66° 56′ N. 18° 30′ E.), killed by a hawk, 2/7/59.

271. Woodlark (69).—One spent most of May near to Sedbergh School and disappeared in early June (Sedbergh S.S.).

272. Skylark (70).—The species was passing at Spurn from February 16th, southward as usual; and north-westward at Redcar on the 17th (D.R. and P.S.). *Circa* 20 were at Fairburn on the 23rd (C.W.); and *c.* 50 in a field at Bewerley on March 8th were probably also on passage. In upper Nidderdale, Skylarks were spread by February 22nd (D.S.). Probable feeding and roosting movements are eliminated.

On September 19th to 20th, passage at Spurn was small compared with events later; there was an influx at Redcar; and 385 passed south at Atwick. Coasting passage was noted at Spurn and Redcar on the 27th to 28th. On October 3rd an increase was noted at Flamborough, 1,759 passed south from dawn to 11 a.m. at Atwick; at Spurn the day's figure of *c.* 900 included *c.* 450 passing from 5-40 to 8 a.m. On October 11th the day's count at Spurn of 1,372 included 1,237 passing between 7 and 10 a.m.; and many came in to Flamborough off the sea. October 17th saw a large influx off the sea at Redcar, and *c.* 800 passed at Spurn; and movement continued to the 20th when the Spurn figure rose to *c.* 1,300, 1,231 of which passed before 9 a.m.

A comparative lull ensued until November 1st when ' hundreds ' passed at Redcar; small parties came to Flamborough off the sea; *c.* 670 passed *north* at Atwick which was curious; but at Dimlington 166 came in from sea and *c.* 600 at Spurn passed south. November 8th was the day of peak passage at Redcar; but at Spurn passage became reduced to *c.* 270 and rose to 670 on the 8th. The foregoing gives an idea of the ' broad front ' and the large numbers of immigrant Skylarks on the coast (G.R.B., A.J.Wms., H.O.B., B.S.P., D.R. and P.S., and the Spurn B.O.).

Some records inland can clearly be connected with the coastal movements. Over Hornby Lakes *c.* 176 passed south-east in the early morning of October 4th and *c.* 200 were in the fields (G.R.P.). Large numbers passed south-west over Blaxton on October 17th and 18th (A.E.P.), and in the Sheffield area southerly (R.G.H.); and *c.* 150 over Chevet, near Wakefield, on the 24th (R.W.). Several observers in the Harrogate area noted movement on many days in October to November; *c.* 150 were estimated to pass south-west in 2½ hours from 1 p.m. on October 16th (M.R.S.). The Fairburn maximum was *c.* 100 on November 8th (C.W.).

Teesmouth seems an obvious place for Skylarks to turn inland. At Spurn most passed south.

273. Shorelark (72).—Recorded: two at Atwick, March 8th and November 28th (G.R.B.); one Flamborough, October 25th (A.J.Wms.). At South Gare, four on January 10th-11th; three several dates to February 15th; and one on 28th (J.N., P.J.S., D.S-S., I.F.S.). At Spurn: one January 18th (A.F.); and up to eight on many days from November 7th to the year end, with 16 on November 15th.

274. Swallow (220).—March appearances were: March 10th at Elland (T.K.), three March 27th at Harewood (R.V.J.); and one on March 30th at Hornsea Mere (G.R.B.). The next was at Fairburn on April 7th (C.W., J.M.); and no numbers were seen before 16 at Bretton Park on April 11th (T.D.B.). Late dates were at Ilton on October 29th (P.Y.); at Swillington Ing on November 5th (P.G.R.B.); at Flamborough on November 1st (A.F.G.W.); one Bewerley, November 2nd (A.S.); at Spurn on November 6th and 7th, four at Welwick on November 8th (A.C.); one at Atwick on November 28th (G.R.B.); and one at Drighlington on December 5th (D.A.R.).

The heavy spring passage at Spurn came from May 7th to 16th, with *c.* 1,000 as maximum on May 8th passing south, and 15 passing north. An ' avalanche ' passed north-west at Redcar on May 8th, too; and passage continued for some days (D.R. and P.S.).

In autumn at Spurn, August 3rd to 4th (*c.* 2,150), September 7th (*c.* 2,050) to 9th (*c.* 2,500), and September 19th to 21st (*c.* 3,400 on the 20th) were the periods of maximum passage. *Circa* 4,500 roosted in reeds at Hornsea Mere on September 19th; and 1,214 were counted passing south at Atwick on the 20th (G.R.B.), when many passed at Flamborough (H.O.B.). Passage at Redcar from August 23rd to September 27th showed its peak on September 20th (D.R. and P.S.).

Fantastic numbers (estimated at 15,000) came to roost in reeds at Fairburn at dusk on August 19th, with even more Sand-Martins. Numbers were high nightly from August 15th to 22nd; and from September 2nd to 6th. On September 2nd large numbers flew on up the valley to roost elsewhere. Big numbers were there again from September 19th, falling to few by the 25th (C.W. and others). Concentrations were comparatively small elsewhere.

Albino Swallows were noted near Tadcaster on July 25th (C. Disbrey); and at Stainforth on August 3rd.

276. House-Martin (222).—Twelve at Newton Ings on April 8th (J.D.P.) were the earliest of which I feel sure. The next was at Northallerton on April 12th (J.P.U.). One at Atwick on the 25th was the first on the coast (G.R.B.). House-Martins were seen as late as November 2nd at Spurn, November 8th at Flamborough (J.C.P.), and November 6th at Cowthorpe (Wetherby) (E.W.A.). An albino at Rievaulx was seen by many people in July and August (A.G.).

Circa 630 hawked over Hornsea Mere on May 26th (G.R.B.). At Spurn the spring maximum was 42 on May 30th, when numbers also passed at Redcar (D.R. and P.S.).

On September 20th, 359 moved south at Atwick (G.R.B.); and some numbers moved into the south-west wind at Flamborough (H.O.B.); and *c.* 930 passed at Spurn; 36 on September 7th being the next highest day's figure at Spurn in autumn. The species often travels with Swallows, but rarely so many, or so high proportionately as on September 20th.

277. Sand-Martin (223).—There were eleven records of this species in March, from the 25th, when two were at Blaxton (J.B., A.E.P.), and one at Fairburn (C.W.).

Many passed with Swallows at Redcar on May 8th (D.R. and P.S.), when the spring maximum of 34 passed at Spurn (33 south, one north).

This species shared the reeds at Fairburn for roosting quarters with Swallows in August; and from the 15th came in fantastic numbers (*c.* 18,000 August 15th). On August 19th *c.* 30,000 to *c.* 35,000 seemed to arrive from nowhere; they had probably concentrated from reaches of the Aire (and perhaps other rivers) where the dry summer had favoured successful breeding, and were beginning their migration.

The Spurn autumnal maximum passed on August 23rd, *c.* 1,000 (when Swallows numbered *c.* 500). On August 15th *c.* 1,230 were over Hornsea Mere (G.R.B.). On August 18th thousands passed south-west from the Humber up the Trent at Trent-mouth from 18.00 to 19.30 hours (B.S.P.); as the wind moderated and with dusk near, the birds began to move the other way (R.H.), perhaps towards another place at which to roost.

Albinos occurred at Fairburn on July 22nd and 23rd (C.W.), at Masham from August 21st to 24th (E.E.J.); and above the river at Elland in autumn (T.K.).

Ringed, Tockwith, 20/6/59; trapped Romford S.F., Essex, 29/7/59 (Harrogate N.S.).

Ringed, Harrogate S.F., 9/5/58; dead Killinghall, 18/5/59 (Harrogate N.S.).

Ringed, Knaresborough S.F., 17/5/58; recovered Killinghall, 13/8/59 (Harrogate N.S.).

Ringed, Knaresborough S.F., 5/5/58; recovered Otley, 15/7/59 (Harrogate N.S.).

Ringed, Knotford Nook, 27/4/57; recovered $\frac{1}{4}$ mile west, 2/6/59 (P.S.).

Ringed, Masham, 18/7/58; trapped at nesting colony at Mickley, 1/8/59 (E.E.J.).

Retrapped near Harrogate in 1959 were: one of 1956, 3 of 1957, and 9 of 1958 (H.N.S.).

279. Raven (1).—One pair was robbed of two successive clutches. One pair was seen feeding young; and a third probably nested successfully. Seen in several areas of the hill country.

280. Carrion Crow (3).—Twenty-five were near Hatfield Moor on March 27th (A.E.P., J.B.). A few were apparently on passage at Redcar from March 26th to 29th (D.R. and P.S.). *Circa* 50 were at Sewerby on March 31st (G.R.N.). Some passed at Spurn March 27th to 31st, and up to 34 April 4th to 6th, and *c.* 20 on April 19th. Autumnal maximum was 51 on October 11th. A pack of *c.* 50 on Pennyghent on July 12th was curious (J.K. and A.E.F.).

281. Hooded Crow (2).—Seven were at Spurn on April 5th with three other species of crow; and the last appeared on June 2nd (two). A few appeared elsewhere in Holderness in the early months up to April 4th, and at Redcar two on March 26th (D.R. and P.S.); and ones on Hatfield Moor, March 27th, Sewerby Rocks, March 31st (G.R.N.); and Stanghow, April 10th and May 18th (M.A.). Two were at Redcar on March 26th (D.R.S.).

In the autumn, one at Ravenscar on September 20th (A.J.W.) was the first of a number of records. More were seen at Spurn than for several years from three on October 11th to three on December 5th, when 18 Rooks and 40 unidentified crows also appeared; 26 on October 20th was the maximum. Twenty-six were counted along the Humber bank between Patrington Haven and Kilnsea on October 18th (A.C.). October 11th was the earliest date in Holderness (Filey Brigg (R.H.A.) and Atwick (G.R.B.)). Records came from a number of areas including birds as far west as Fairburn on October 17th (C.W., etc.), and Huby on December 1st (H.L.S.), and Leighton on November 22nd (M.R.S.) and December 28th (E.E.J.).

282. Rook (4).—Flight-lines in and about Airedale, to and from roosts of Rooks and Jackdaws are being studied by Leeds bird watchers for publication later.

Ringed, Apperley Bridge, 2/6/58; Barwick-in-Elmet, 6/6/59 (E.E.J).

Ringed, Bradford, 17/7/59; Todmorden, 1/11/59 (A.F.).

Passage was noted at Spurn on one or two days in February and March, particularly March 27th to 29th, April 5th and May 2nd. None were seen from May 30th to 17 on September 6th. Autumn maxima came with 82 on October 20th, when 26 Hooded Crows also passed, and 289 on November 15th with passage spread over three hours from 8 to 11 a.m. Intermingled were 31 Jackdaws, 6 crows which kept themselves separate, and 72 Corvidae were unidentified, as were *c.* 150 that passed on October 30th. There was little evidence of migration about Teesmouth concerning Rook. The large numbers at Fairburn on September 22nd, October 17th and 25th, and November 7th to 8th could as well be English Rooks as continental. In 1954 five nests at Cloughton were the beginning of a rookery with 46 nests in 1959 (R.S.P.).

283. Jackdaw (5).—Pull ringed Haverah Park, 7/6/58, dead Snowden, near Otley, 26/5/59 (H.N.S.). The few appearing at Spurn were usually associated with Rooks (see under that species). Four flying very high south-east at Redcar on March 1st may have been migrants. Over Stanghow *c.* 100 flew north-west and very high on October 23rd (M.A.). A pair at Leighton had a nest with six eggs built in Sitka spruce, like a Rooks' (P.Y.).

284. Magpie (7).—A roost in firs at Carlton (Otley) held 44 all winter (D.B.I.). Seventy-eight were at Rodley S.F. on September 17th (D.A-R.).

288. Great Tit (98).—Ringed Spurn, 17/10/57; Winestead Hall, near Patrington, 20/10/59, 11 miles north-west. A nest-box held ten young in the morning of

May 22nd; in the evening all were dead; they had probably fed on poisoned insects (J.P.U.). A few occurred at Spurn from August 11th, daily from September 6th; maxima twelve September 24th, ten September 28th, then dropped to one or two, but eight on October 31st. A few passed through at Redcar from September 11th, especially on the 19th (D.R. and P.S.).

289. Blue Tit (100).—Ringed, Stewkley, Bucks., 8/4/58; Maltby, near Rotherham, 21/10/59 (105 m. north) (R.F.D.). A deserted Tree-creeper's nest holding eggs behind pine-bark in Farnley Park was used by Blue-Tits which hatched six of their own eggs; later the nest and young fell out (D.B.I.).

Two Blue-Tits coasted at Redcar on September 4th, when five in the fox-covert made short flights high in the air only to drop back into the bushes. Similar behaviour was seen on a number of days to October 4th, when eight or ten left the covert. Turned up in such unexpected places as centres of Redcar and Middlesbrough; but numbers were always small. Numerous along the cliffs at Filey on September 27th (E.G.). Several parties passed south on September 24th, and fewer on some other days, but although migrants from far away were possible there was little to suggest it. The autumn of 1957 remains unique for Titmice.

290. Coal-Tit (102).—Two at Flamborough on October 10th (A.F.G.W.) and one at Spurn on November 7th were the only coastal records.

293. Willow-Tit (108).—Recorded at Harrogate, Haverah Park, Knaresborough, Farnham, Bishop Thornton, Ripley, Hampsthwaite, Sawley, and Gouthwaite (Harrogate N.S.); and near Redcar, at Staithes, Goathland, Hornby Park, Gilling, near Ainderby Steeple, Swaledale near Marske, Denby Dale, Adel Woods, Eccup pinewoods, and at other places where already well known. One was caught at Spurn on June 28th (C.W.).

294. Long-tailed Tit (110/11).—Reports of many parties reached me from many areas, and I saw enough myself to be sure the species was in good numbers. Five turned up at Spurn on October 28th, 14 on November 1st, and one on the 8th.

295. Bearded-Tit (112).—The unaided, undoubted appearance of Bearded-Tits in Yorkshire was a high-light of the year. On October 17th six flew into the reed-bed near to the Spurn Warren trap at 8 a.m. (R.F.D., D.A.R.). A drive through the reeds showed eleven birds, of which six were caught and ringed later. At least three were males. After being flushed several times the birds towered and circled at *c.* 100 feet, which might possibly indicate recent arrival with migrational urge still active. Seven were seen on the 18th and 19th, and they towered and circled calling excitedly when other species passed. On the 20th three flew south past the 'Narrow Neck' at 7-25 a.m., and no more were seen in the reed-bed.

On October 18th a male and two hen Bearded-Tits were seen in a reed-bed at Hornsea Mere (G.R.B., M.K.T.). These could be the three that passed along the 'Narrow Neck' on the 20th.

Winds were south-east on the 17th, and had been so for some days, and were strong until the 21st. The Bearded-Tits were probably of continental origin.

296. Nuthatch (96).—This species was less obvious in 1959 in the Masham area than at any time since 1945 when I came here; in most of its other known haunts it has been normal. It has been reported at Wentworth Woodhouse (T.M.C.), and Denby Dale (P.G.R.B.).

298. Tree-Creeper (93/94).—One caught at Spurn on 6/10/59 was of the typical northern race (*Certhia f. familiaris* Linnaeus). It suffered an accident and Mr. Alfred Hazelwood was enabled to confirm my opinion (see *Naturalist*, January, 1960).

299. Wren (213).—Seen at Spurn on most days except from April 27th to July 31st, scarce in August, and daily from September 5th, with maxima of eight on September 19th, 12 and 15 on October 21st and 23rd, and eight on November 1st.

A Wren disturbed by a rat on the canal bank at Bingley on September 28th flew into the water, floated with outstretched wings, and propelled itself to land (J.C.L.).

300. Dipper (218).—The Sedbergh S.S. Dipper enquiry, 1959, showed a nest begun to be built on February 17th, with the first egg laid on March 7th (P.M.); and much other interesting information; but the 'loss' of 57 per cent. of possible success for eggs against 32 per cent. in 1958 is not fully explained.

301. Mistle-Thrush (174).—

Ringed, Swinton, S. Yorks., 9/5/58; dead Blyth, near Worksop, 31/1/59 (G.F.O. per R.J.R.).

Ringed, Sutton (Hull), 8/5/58; dead same area, 12/5/59 (B.S.P.).

Noted at Spurn, one or two, on 16 days spread over all months excepting from March 21st to July 25th. Eighteen at Flamborough on September 13th (A.J.Wms.) suggested passage migration. At Redcar, up to three seen passing on several days February to March and September to November (D.R. and P.S.). Fifteen in flock at Lindley Wood on August 27th (P.S.); and *c.* 80 at Hornby Park on September 29th (G.R.P.), were unusual—thoughts of Fieldfare are inevitable.

302. Fieldfare (173).—Winter status average. Not recorded inland after: *c.* 20 April 28th at Lindley Wood (P.S.), and one April 29th at Bewerley (A.S.), one Denton, Ilkley, May 6th (D.B.I.). One was at Filey on May 12th (T.M.C.), and two at Spurn on May 31st which flew south and were seen at the Chalk Bank and later at the Point (J.C., C.W. and others). Early Fieldfares in autumn were: one near Otley September 2nd (D.B.I.); two Fairburn, September 19th (W.C.W.); one Flamborough, September 20th (H.O.B.); and at Spurn single birds on five days from September 2nd to 19th, with five on the 20th.

Dates of principal passage at Redcar were October 24th, 27th, November 1st, 6th and 15th (D.R. and P.S.). Those at Spurn are tabulated for the four large Turdidae, covering days of maxima for all.

Fieldfares were reported from many areas, often, but not always connectible with coastal passage. In the Hornby-Catterick area of the Vale of Mowbray were *c.* 400 on October 18th (G.R.P.); and good numbers were in Colsterdale on the 19th (P.Y.). D. B. Iles reports the main arrival on October 31st at Carlton; most had gone by November 7th. Up to *c.* 1,000 were passing WNW. at Eccup during most of November 1st (G.R.N.); and flocks were coming to Fairburn in the morning of November 1st (E.G.), where 390 were recorded on November 8th (C.W., etc.), and *c.* 250 at Sprotborough (J.B.H., A.E.R.).

Major Occurrences at Spurn of the Larger Turdidae

Date 1959	*Comments*	*Field-fare*	*Song-Thrush*	*Red-wing*	*Black-bird*
Jan. 10th.	This cold-spell weather movement	200	250	60	25
,, 11th.	was remarkable for its application to all four species	390	300	140	40
Oct. 4th.	The first considerable arrival of Redwings	4	35	120	20
,, 10th.	Song-Thrushes and Redwings were coming off the sea in some numbers, and on 11th	15	200	300	50
,, 14th.	Sudden increase in Redwings... ...	12	20	200	50
,, 23rd.	Fieldfares and Redwings came in off sea after 1 p.m. and continued to late afternoon	350	1	350	8
,, 30th.	Turdidae coming in parties off sea all day. Some passed south, some flew west. Many Blackbirds alighted ...	1000	50	300	1,000
Nov. 1st.	284 of the Blackbirds flew west up river from the Point between 9-15 and 12-30 a.m.	20	3	12	430
,, 15th.	424 of the Fieldfares passed between 8 and 11 a.m.	440	1	12	10

303. Song-Thrush (175/7).—

Ringed (juv.), Masham, 8/8/59; Los Corrales de Buelna (Santander), Spain (43° 15′ N., 4° 04′ W.), 8/12/59 (R.C.).

Ringed, Spurn, 26/2/59; Uza, near Meyos (Landes), France (4° 02′ N., 1° 12′ W.), 19/11/59.

Ringed (juv.), Knaresborough, 28/8/58; Scarisbrick, near Southport, Lancs., 1/12/59 (Harrogate N.S.).

Ringed, Ilkley, 27/5/56; Ballinagh, Co. Cavan, Ireland, 31/1/59 (Wharfedale N.S.).

The movement at Spurn, January 10th to 11th (see table), was reflected in numbers of very tame Song-Thrushes under hedges on January 11th over Holderness generally (H.O.B.); and in parties of up to ten in Harrogate (P.J.C.) on January 13th.

At Redcar an influx was noted on September 14th-15th and October 4th and

13th. Passed over in some numbers at Sewerby after dark on October 4th (H.O.B.). On October 10th, numerous on Atwick cliff tops; and a party of 14 seen at Hornsea Mere (G.R.B.). On October 11th, numerous and coming in from sea at Flamborough (A.J.Wms.).

During the dry autumn, Song-Thrushes about Masham were mainly found near to the river, and later seemed to have left the area. During the summer, numbers were about equal to Blackbirds for the first time for years at Masham.

304. Redwing (178/9).—

Ringed, Spurn, 15/10/59; Nargis, near Montargis (Loiret), France (48° 07′ N., 2° 05′ E.), 15/11/59.

Ringed, Spurn, 21/10/58; Nogaro (Gero), France (43° 46′ N., 0° 02′ W.), 21/11/59.

Several flocks totalling *c.* 300 passed south over the Humber near Melton on January 8th (S.M.); and see Table. On March 18th *c.* 200 flew north over Harrogate at 5-30 p.m. (P.J.C.), and *c.* 30 flew NNE. near Sawley at dusk on April 1st (A.F.G.W., M.R.S.). The last were three at Spurn on April 12th. One was found at Leighton, freshly killed on August 12th (E.E.J.), but the species only reached Spurn on September 30th, two were at Flamborough on September 28th (F.C.G.).

Ten were at Redcar on October 4th (D.R. and P.S.), when some came in at Flamborough (A.F.G.W.), and some numbers passed over Sewerby after dark (H.O.B.); and over Harrogate; and the first occurred in the Huddersfield area (R.Cr.). Further passage dates at Redcar were October 10th (large numbers), 12th to 14th; and November 1st, 15th and 16th (D.R. and P.S.). Redwings were crossing the coast at Flamborough on October 10th and 11th (A.J.Wms.). Over Hull birds were heard every night from October 9th to 30th excepting three (B.S.P.).

The October 10th to 11th records found echoes at Eccup, Leeds, Bretton, Otley, Ilkley, Barnsley, Sheffield, Ossett, Shipley, Knaresborough, Huddersfield and other places where Redwings called from the air after dark, or were seen. *Circa* 900 passed over the Lockwood Beck Reservoir on October 12th. There was heavy nocturnal passage over Doncaster on October 30th-31st (R.J.R.)—the Humber and Don may have been followed from Spurn (see Spurn Table). Later records were fewer. Flocks of Redwings and Fieldfares came to Fairburn on November 1st, and *c.* 70 were there on November 8th. It was a wonderful passage; and our first item provides evidence that many Redwings travelled from Yorkshire to distant places.

307. Ring-Ousel (182).—Ringed Wainstalls (Cold Edge Dam), Halifax, 22/5/58; recovered in the Gironde, France, 8/3/59 (T.K.)—one from this brood reached Spain in November, 1958.

One was reported from Barden Moor on February 22nd (P. Wright per A.P.). There were nine records in March, including a male at South Gare on the 22nd (I.F.S.); and three near Pateley Bridge on the 25th (A.S.). Fairly plentiful in its breeding areas. Occurred on Otley Chevin on October 8th (D.B.I.) and at Stanghow on October 12th (M.A.). Occurred at Spurn on five days in autumn, including six on October 4th and three on October 10th.

308. Blackbird (184).—

Ringed, Spurn, juv. ♂, 18/1/59; near Sutton-on-Hull, 14/2/59, trapped and released by G.R.B.

Ringed, Spurn, juv. ♂, 19/1/57; Fosser, Höland, (Äkershus) Norway, early/1/59 (50° 49′ N., 11° 29′ E.).

Ringed, Spurn, ♂, 2/3/58; Båstad (Kristianstad), Sweden, 4/2/59 (56° 25′ N., 12° 50′ E.).

Ringed, Spurn, ♂, 30/3/58; Åby, near Örebro, Sweden, 29/3/59 (59° 16′ N., 15° 12′ E.).

Ringed, Spurn, juv. ♂, 17/10/56; Grafschaft, near Bentheim (Niedersachsen), Germany, 15/4/59 (52° 08′ N., 7° 10′ E.).

Ringed, Spurn, ♂, 15/12/57; Kastrup (Sjaelland), Denmark, –/6/55.

Ringed, Spurn, ad. ♀, 8/11/58; near Bad Segeberg (Schleswig-Holstein), Germany, 22/7/59.

Ringed, Spurn, 25/10/57; Flensburg (Schleswig-Holstein), Germany, 16/7/59.

Ringed, Spurn, ♀, 5/11/58; Gisselfeld (Sjaelland), Denmark, 27/10/59.

Ringed, Spurn, ♀, 7/11/58; Marma, near Alvkarleby (Uppsala), Sweden 29/9/59 (60° 38′ N., 17° 30′ E.).

Ringed, Spurn, ad. ♀, 12/10/59; Dunmanway, Co. Cork, Ireland, 24/11/59.

Ringed, Spurn, ♀, 4/4/59; Kilmanahan, Clonmell, Co. Waterford, Ireland, 7/12/59.
Ringed, Knaresborough, juv. ♀, 15/9/55; Pudsey, 12/2/59.
Ringed, Knaresborough, Pull, 9/6/55; Byers Green, Co. Durham, 28/5/59.

There was an influx to upper Nidderdale in late February, and *c.* 50 roosted at Gouthwaite on the 28th (A.F.G.W.). Passage was noticeable at Spurn March 20th to 22nd (37 on 21st); and numbers increased at Redcar on March 27th (D.R. and P.S.).

Seven were found dead near Northallerton after crop-spraying by farmers (J.P.U.). I caught one in my garden at Masham on 5/8/59 that I had ringed as a juvenile, 26/9/53 (R.C.). An almost total albino was seen at Chevet on December 20th (E.G.).

Passage was small at Spurn until October 30th (see Table). Some came in to Redcar on October 10th, 24th and 30th. Twelve at Flamborough on October 11th, and several on October 18th (A.J.Wms.); and several in from sea at Atwick on October 17th and November 1st (G.R.B.) complete the recorded coastal picture.

Many passed over Knaresborough in the nights of October 30th and 31st, and November 1st (I.D.) and over Mexborough on November 1st-2nd (J.B.H.). Many were in hedges about Hutton-le-Hole on November 8th (J.L.). During the period to November 18th increases came to the Sheffield area (R.G.H.).

311. Wheatear (186).—There were numerous March Wheatears, the first being near Sedbergh on March 2nd (P.M.), and the next at Ossett Spa S.F. (E.G.), and near Sheffield (R.G.H.) on March 21st. Eleven at Spurn on March 22nd was a large number for so early.

The heaviest passage came from August 21st to 26th: up to 30 at Spurn; ' a rush ' at Filey on the 21st (T.M.C.), maximum on the 23rd at Redcar; 20 at Bempton and Flamborough (J.C.H.L., H.O.B.), and 16 at Fairburn, and various others; and on September 6th with *c.* 50 at Spurn, and *c.* 30 in the Whitedale area (Hornsea) (G.R.B.).

Very late dates were October 29th; the last at Spurn, and one at Stanghow (M.A.); but one of December 12th at Swinton, South Yorkshire, remained for a few days, and was trapped and retrapped to enable proof that it was only *O. o. oenanthe* (F.H.). One picked up dead at Paull on May 4th was considered to be *schioleri* (Faroes-Iceland), by A. Hazelwood (B.S.P.).

317. Stonechat (198).—None seen suspected of breeding. Present at Spurn on a number of days to four on February 28th; and on some days from September 19th to the year end (five on November 21st). Single birds at Easington, Patrington Haven and Hornsea (January 25th, February 1st, November 15th) (B.S.P., R.H., A.V.) were all in the East Riding. February 28th was also the last of six other records at South Gare, Staithes, Swillington Ing, and Aldwarke S.F. in the early months. One was on Ilkley Moor on July 4th, one South Gare on September 17th, up to two at Fairburn in October, and four on October 18th in three different places on the Langsett, Midhope and Ewden Moors.

318. Whinchat (197).—Ringed Spurn, 4/10/58, at Furneaux Pelham, near Huntingford, Herts., on 26/5/59.

The first appeared near Stocks Reservoir on April 18th. Breeding status was average. Fairburn Ings had the last on October 25th.

A few passed at Spurn in spring (seven on May 23rd); and from August 5th, with maxima of *c.* 20 August 21st-23rd, and *c.* 50 September 7th-8th (misty early morning with wind NE., to E., to SE. by evening), and the last on September 30th. A few were at Flamborough and Hornsea and Redcar on a few days in August-September with enough at Filey on August 23rd to be described by T.M.C. as ' a rush'.

320. Redstart (201).—One at Riffa, near Otley, on April 5th (H.M.) was the first; the next being at Spurn on the 13th at Stocks Reservoir (A.P.) and at Redcar on the 14th, the latter bird (♂) was seen to enter a nest-box (E.E.J.). Breeding status was normal.

Passage at Spurn in spring on a few days ended on May 24th with maximum of four. In autumn, passage was spread from August 13th to October 21st on many days with no great ' rushes '; maxima 20 on September 7th. A belated Redstart appeared at Spurn on November 14th; and one at Patrington on November 19th (K.M.S.). A minor wave was noted at Filey on August 21st (T.M.C.); and six at Flamborough on September 6th, one at Bempton (H.O.B.), and four at Hornsea Mere (G.R.B.), coincides with events at Spurn.

321. Black Redstart (202).—Quite a 'rush' for this species occurred from March 27th to 30th at Spurn, and at Atwick (G.R.B., L.S.) and Flamborough (H.O.B.). Spurn had eleven on March 28th, Atwick two or three, Flamborough one. A hen or juvenile was at South Gare on March 13th (P.N., J.I., P.R.); one at Atwick on October 10th (G.R.B.); and one at Flamborough (M.R.S., A.F.G.W.), one at Spurn on October 4th, a male at Filey Brigg on November 7th (R.J.R.), and a hen on seaweed to north of Bridlington on December 12th (G.R.N.).

322. Nightingale (203).—One sang at Staithes for three nights from April 24th (W.K.R.), at least two Nightingales were heard in south Yorkshire. One reported as singing near Thixendale for some days in June—said to sing from 10-30 p.m. to 2-30 a.m. (Y.E.P., June 20th) was unconfirmed.

324. Bluethroat (205/6).—Recorded at Spurn: one that sang on May 23rd; a first summer male caught on May 30th, a male seen on September 9th and 10th, a juvenile caught on the 11th; and a juvenile or hen on the 17th.

325. Robin (207/8).—

Ringed, Spurn, 10/4/58; *c.* 8/4/59, Stronsay (Orkney).

Ringed, Linthorpe, Middlesbrough, 10/1/59; 10/10/59, Whitburn, Co. Durham (I.F.S.).

Recorded on a few days at Spurn (maximum three March 28th) to May 14th; and from August 16th on many days to the year end. The main passage began on October 4th (*c* 8.0 on the 5th), renewed on the 10th (*c.* 70) to 11th (*c.* 60) after which numbers fell daily to three by the 26th. A little rush of 13 on November 21st was curious. The early October influx was noted at Redcar on October 10th (D.R. and P.S.); at South Gare, *c.* 30 on the 11th (I.F.S., D.G.B., F.G.G.); at Scarborough—marked influx early October (A.J.W.); at Flamborough from 4th to 11th—17 on October 7th (A.J.Wms.); and 30 on the 11th (I.D., A.F.G.W.); and at Atwick—six October 3rd and 10th (G.R.B.). *Circa* 12 were about the Fairburn Ings N. Reserve on September 20th (C.W.), when six at Spurn was the peak of the first small wave that began on the 17th.

327. Grasshopper Warbler (145).—First heard at Hornsea Mere on April 25th (G.R.B.). Occurred in May-June in at least eleven places in the West Riding and in three in the East and North Ridings; and probably bred. Single birds occurred at Spurn on May 7th, August 27th, 29th, 31st and September 7th. One sang near Marske-on-Sea on August 5th (D.R.S.).

333. Reed Warbler (149).—First noted Hornsea Mere on April 19th, but the main arrival delayed to May 16th to 18th (G.R.B.). Breeding status normal. Scarborough Mere still retained *c.* six pairs on June 21st (A.J.W.). Last noted: one at Hornsea Mere on September 27th (G.R.B.); and one by the Fairburn Cut on October 1st (R.F.D.). Spurn had odd birds on May 24th, August 9th and September 5th to 10th.

337. Sedge Warbler (153).—Early arrivals were: April 18th, Wintersett (G.C.), April 19th, Fairburn (C.W.); and April 20th at Spurn where the main spring passage came from May 8th to 15th. One at Hornsea Mere on October 11th (G.R.B.) was the last.

339/340. Melodious Warbler/Icterine Warbler (156/155).—A large warbler at Bempton on May 10th had a lemon yellow breast fading to white under-belly, prominent silvery-buff tips to secondaries on closed wing, wing-coverts faintly striped brown and whitish; beak large; legs grey, pale eye-stripe; back olive-green, forehead appeared high (A.E.P., J.B., A.A., and Mr. Oates, who saw an Icterine in the hand at Spurn in September, 1958). K. Williamson's article of March, 1956, in *British Birds* was consulted before decision that this bird was an Icterine.

D. J. Standring confidently named an Icterine in the Kilnsea Beacon Lane on August 31st after noting all its features. Of three seen on September 2nd at Spurn two were caught and their wing formulae checked by H. G. Brownlow. Single Icterines were seen on the 3rd and 4th. A bird seen at Fairburn on September 6th was new to the observers and was probably an Icterine (K.S., W.C.W.).

343. Blackcap (162).—Seen at Staithes, April 13th (W.K.R.), and at Spurn on April 14th; and sang at Knaresborough on April 15th (A.F.G.W.). After odd birds on a few days from August 21st to October 2nd, up to three were noted daily at Spurn until October 21st and on four days after to November 3rd. One was at Redcar on October 10th (D.R. and P.S.) when one was found dead near Oswaldkirk (A.G.). A hen caught at Ilkley S.F. on November 29th (E.S.S.), and two males

there on December 12th (R.C.P.); and one potter-trapped to bread in a Middlesbrough garden, were probably all late immigrants.

344. Barred Warbler (159).—Occurred at Spurn, two on August 31st to September 20th, with maxima of three on September 3rd and 7th. One was at South Gare on September 13th (K. Baldridge) and 20th (V. F. Brown).

346. Garden Warbler (161).—One was at Bretton on April 19th (G.C.). A nest was found at Farnley on May 2nd nearby where one sang on April 23rd (D.B.I.). Spurn had only three birds in spring (May 5th and 23rd); but the species appeared almost daily from August 21st to September 22nd, with maximum of 15 on August 21st of which nine were caught. One was at Staithes on August 25th (D.G.B.).

347. Whitethroat (163).— '

Ringed, Spurn, 6/9/58; caught in car radiator between Durham and Scottish border, early/7/59.

Ringed, Spurn, as juv., 14/8/58; near Portimão (Algarne), Portugal, 20/9/59.

Ringed, ♂, Knaresborough S.F., 2/5/58; found dead Knaresborough, 4/6/59 (H.N.S.).

Ring, (juv.), Knaresborough, 10/8/57; Brompton-on-Swale, 18/7/59 (H.N.S.).

Single birds at Aclam on April 15th (A.V.) and Ripley on April 17th (M.W.) were the first. After one at Spurn on April 21st, most waited until mid-May; *c.* 40 on June 27th would include local juveniles. Passage at Spurn in autumn was a long-drawn trickle, with 25 on September 1st, and ending with one on October 6th.

348. Lesser Whitethroat (164).—Very sparsely distributed as usual except perhaps in the south of V.C. 63. One near Haxby on April 20th was the earliest recorded. Single birds were noted at Spurn on five days from April 29th, and on seven days September 4th to October 6th. Also occurred on the coast at Staithes, May 25th to 29th (W.K.R.); and at Redcar on five May days and on August 23rd (D.R.S.).

354. Willow Warbler (132).—

Pull ringed, Staveley, 9/6/59; Santibanez de la Pena (Palencia), Spain (42° 48′ N., 4° 45′ W.), 3/8/59 (H.N.S.).

The earliest were on the coast at Hornsea Mere on March 27th and one on the 30th (G.R.B.); and inland at Harewood on March 27th (R.V.J., A.H.B.L.). Spurn had none until one April 10th, then some on most days to May 24th. The main passage came from April 25th to 30th (20 on April 29th), and May 7th to 9th (25 on May 8th). The autumn passage was a mere trickle except from August 15th to 18th (*c.* 20 on 16th and on 17th). Last birds were on October 9th to 17th at Spurn; and two on October 12th at Scarborough (A.J.W.); and one at the Ewden Beck Reservoir on October 18th (G.A.).

356. Chiffchaff (129).—Single birds at Staithes (W.K.R.) and Coxley (A.F.) were the first on March 26th; on the 27th one was in the Sedbergh area (P.M.), and three were singing at Harewood (R.V.J.). Coastal appearances in March are infrequent—South Gare had one on March 29th-30th (I.F.S.), and on March 30th single birds were at Spurn, and Hornsea Mere (G.R.B.). A pair nested near Austwick where it is very unusual (W.K.M.). Only odd birds occurred at Spurn in spring and in September; but from three on October 4th up to four occurred on twelve days to October 19th, and a very belated bird on December 12th. Five were at South Gare on October 11th (D.G.B.), two at Flamborough on October 10th (A.J.Wms.) and *c.* 10 on the 11th (A.F.G.W., I.D.), when one was at Hornsea Mere (G.R.B.). It seems fairly clear that some of the species travelled down the coast.

357. Wood-Warbler (135).—Slightly under normal in some northern woods. A bird in Chevet Woods on April 18th (G.C.) was well before the next. Spurn had its only one on August 28th.

364. Goldcrest (126/7).—Two Goldcrests recorded at Spurn on March 22nd marked the peak of the spring passage; odd birds occurred from March 1st to April 11th on a number of days. During the same period a few were noted inland, passing in places where the species does not breed.

The autumn passage of Goldcrests in Yorkshire was unusually large; in 1958 it was unusually small. Beginning with three at Spurn on August 29th, was seen daily throughout September (14 September 17th and 19th); became intensified in early October until the 10th to the 12th, when the species ' was all over the peninsula ', with *c.* 800 mentioned as an estimate on the 10th of which 76 were caught in the big traps; after which numbers dwindled to a dozen in early November; a minor fresh passage came in mid-November (*c.* 60 on the 15th).

Other coastal areas had large numbers in October: *c.* 120 at Flamborough on the 7th, and ' fantastic numbers ' on the 11th (A.J.Wms.); *c.* 350-400 on Filey Brigg on the 11th (R.A.), over 200 about the Castle Hill, Scarborough, on the 17th (A.J.W.); a huge influx at Redcar on the 10th and numerous until the 20th (D.R. and P.S.); and birds were seen at many other places. Winds at Spurn were easterly from late September to October 15th. The birds probably hit the coast along its whole length.

The effect inland was noticed by many: small parties were at Shirley Pool, Askern, on October 11th (R.J.R.), the main incursion into Airedale was about October 20th and after was seen in various places (J.C.L.); very numerous in Nidderdale during October (P.J.C.); numerous and passing through a suburban garden at Willerby (Hull) on November 1st. Plentiful inland during the winter, and was abundant in conifers at Harewood on December 27th (A.H.B.L.). The spring passage of 1960 should be larger than usual.

365. Firecrest (128).—Two were seen at Flamborough at 10 feet range on September 13th (A.J.Wms.), and one was caught there on November 15th (A.F.G.W., I.D.). The striking white eye-stripe of a bird was seen at Marske (Redcar) on November 22nd (D. Robson per D.R.S.).

366. Spotted Flycatcher (121).—First at Spurn on May 8th; up to eight May 23rd and 24th. In autumn up to three August 21st-26th, and September 6th-8th, with one or two on several other days, and the last on October 11th. One was on Castle Hill, Scarborough, on October 12th (A.J.W.); and one at Scarborough on October 7th, and one on October 18th (A.J.Wms.).

368. Pied Flycatcher (123).—Occurred on April 14th at Ben Rhydding (R.C.P.), and on April 23rd at Cotherstone (A.C.); in Grinkle Park (H.R.), and one that passed through my garden (R.C.). At Spurn only seen in spring on four days from May 10th to 23rd; in autumn from August 8th and daily from August 14th with maxima of up to *c.* 46 August 21st to 23rd, and *c.* 100 on September 6th, dwindling to odd birds at the end of the month. *Circa* 30 were at Flamborough on September 6th (H.O.B.), where a few occurred on a number of other days. Ten came on October 4th and one on the 11th, and two were on Castle Hill, Scarborough, on October 12th (A.J.W.). Breeding status normal.

370. Red-breasted Flycatcher (125).—A hen was caught at Spurn on May 23rd by J. Cudworth and J. Burley; and considered to be in its first summer. In autumn occurred on 17 days from September 4th to October 17th; with four on September 14th and three on the 19th. Ten of these birds were caught, of both sexes. An adult male was at Flamborough on September 13th (I.D., A.F.G.W.), and a female or juvenile on October 1st (A.J.Wms.).

371. Hedge-Sparrow (210/11).—

Ringed, Spurn, 3/4/58; Lehe (Schleswig-Holstein), 4/1/59 (54° 20′ N., 9° 02′ E.).

Ringed, Knaresborough S.F., 26/9/54; retrapped 1957, 1958, 1959.

It was very interesting to have our occasional diagnosis of the continental type race so confirmed. Numbers at Spurn increased to *c.* 20 from March 21st to April 12th; and to *c.* 30 from September 4th to 15th, and in early October. Two were on the South Gare tip on March 22nd and one on the 28th. From September 4th and in early October Hedge-Sparrows at Redcar behaved as if on migration, including a flock of ten on September 5th (D.R. and P.S.).

373. Meadow-Pipit (76).—

Ringed, Spurn, 8/9/56; Almazan (Soria), Spain, 14/10/59 (41° 29′ N., 2° 31′ W.).

Ringed, Spurn, 17/9/58; Guiche, near Peyrehorade (Bassés Pyrénées), France, 15/10/59 (43° 30′ N., 1° 11′ W.).

Ringed, Ilkley, 14/12/58; near Whatstandwell, near Matlock, Derbyshire, 19/1/59.

Odd birds on high ground and flocks on the low ground were recorded in winter. The movement up Nidderdale towards the moors took place from March 14th. Coastal movement began at Spurn and Redcar from March 21st, Redcar showing the larger figures, with *c.* 500 from 06.15 hours to 07.35 hours on the 28th (E.E.J.).

Twenty-two passed at Spurn so soon as the early morning of July 4th (C.W.); but nothing spectacular happened until early September. On the 9th a total of at least *c.* 2,850 Meadow-Pipits passed south and the figure was probably an understatement. Sufficient watchers were available to enable concerted, confirmatory counting from 06.00 hours to 12.00 hours. M. Densley was in the Beacon area,

H. Mayer-Gross on Kilnsea cliff, J. S. Armitage at Sammy's Point, C. Winn at the Narrow Neck and A. Archer at the Point. The records of M.D. and C.W. each totalled over 2,000, and those of H.M-G. to 1,529. From Sammy's Point many birds cut out the curve of the estuary shore (and C. Winn) and flew direct over the estuary. Most came down the sea-coast.

All through September passage continued at Spurn on a smaller scale, with a second peak from the 20th to the 22nd, with figures for the three days of *c.* 1,900, *c.* 1,800, *c.* 1,500. On the 20th, G. R. Bennett watched independently at Atwick (some 25 miles northward) and counted *c.* 970. The species was also numerous at Flamborough on the 19th and 20th (H.O.B.). At what point southward passage began is uncertain, probably not beyond Flamborough. At Redcar birds passed during much of September, but direction of flight there would take them to Teesside and inland. The *c.* 120 counted at Hornby on September 29th (G.R.P.) could so have come inland. Movement southward from Gouthwaite and over Harrogate on September 6th and later are still more difficult to be dogmatic about; as are the numbers at Hampholme on September 13th. Large numbers were at Flamborough on October 17th and at Spurn on the 19th.

376. Tree-Pipit (75).—A small flock, newly arrived, flying among young conifers at Stocks Reservoir was seen on March 24th, and the song heard (A.P.). The species was in the same area on April 18th (J.K. and A.E.F.), when one sang at Millington (H.O.B.). Noted at Spurn on May 24th and 31st; and up to three on many days from August 15th with 48 recognised during three hours of the early morning of September 22nd, among the numerous Meadow-Pipits passing (D.J.M.). One was recorded on October 5th.

379. Rock/Water-Pipit (81).—One was at Atwick on July 18th (G.R.B.). A detailed description was taken on November 8th of a Rock-Pipit trapped at Swinton, South Yorkshire, of which the outer tail-feathers were light, smokey brown (R.J.R.). The observer had listened to calls of the species on Filey Brigg on November 7th which were matched exactly by this bird. One never knows what surprises a trap may bring. Occurred at Spurn on many days to April 21st and from September 19th; most being recorded on October 11th (9), 24th (12), 31st (15), and 12 on November 1st. Dates recorded at Redcar corresponded fairly nearly.

380. Pied/White Wagtail (90/91).—

Pied, Ringed, Rodley S.F., 6/12/85 Sowerby Bridge, 29/1/59 (D.A.R.).

White Wagtails were seen at a dozen places from March 23rd (two at Fairburn) to June 8th. Up to 15 were at Wintersett Reservoir on April 19th (M.N.R.).

Circa 50 *alba* wagtails roosted at Knaresborough S.F. at the end of March (J.R.M.); and a peak of *c.* 40 were at Harrogate S.F. on April 17th (A.F.G.W.). Passage at Redcar was noted from March 22nd to 29th (up to six) (D.R.S.), and a few at Spurn, where 16 passed on September 26th (autumnal maximum).

381. Grey Wagtail (89).—Occurred at Spurn on five days from February 13th to March 30th; and on many days from August 18th to October 28th, with maximum of five on September 6th and 20th; and at Redcar in both March and September (D.R. and P.S., E.E.J.). Seven were on an industrial stretch of a Hull open drain on October 14th (B.S.P.). Breeding status normal. In a wall near Thirsk three nests held young on May 10th, June 11th, and June 17th, within 28 yards; only one pair of birds was seen (C. Hudson), but I am inclined to think the male must have had two mates.

382. Yellow Wagtail (88).—

Ringed, Gouthwaite, as adult, 7/8/59; killed Dar Bouazza, Morocco, 29/9/59 (33° 32′ N., 7° 50′ W.) (H.N.S.).

One at Gouthwaite on April 4th (M.R.S.) was the first. At Knaresborough S.F. were 25 cocks on April 18th (J.R.M.). *Flava* wagtails occurred at Spurn on a number of days from April 14th to May 31st; and from August 1st to September 20th with a maximum of 14 passing south on August 15th. On the 16th they were numerous at Patrington Haven (H.O.B.); and 19 were on the cliff top at Hornsea (G.R.B.). One was at Hornsea on October 10th (G.R.B.), the last seen except for one at Wintersett Reservoir on November 5th (M.N.R.). *Circa* 175 roosted in reeds at Swillington Ing on August 10th (A.H.B.L.), and at Fairburn up to *c.* 300 from August 15th to September 6th (C.W. and others).

A bird with slate-grey head and white eye-stripe was seen near Ossett for some days from May 2nd (R. Parrish, A.F.); and one at Fairburn on May 4th (C.W.).

383. Waxwing (120).—The latest in the early months were five near Masham

on April 7th (E.E.J.), and one in Harrogate Valley Gardens from April 6th to 9th (M.R.S., P.J.C., A.F.G.W.). Parties were mainly small, the larger flocks perhaps having been split up as a result of insufficiency of berries in an area to feed larger numbers. Food recorded include: haws, cotoneaster berries, rose hips, and apple pips, Siberian crab apples, rotting pears, etc.

Two at Hornsea on October 31st (G.R.B.) were the first recorded in autumn. On November 1st Waxwings occurred: one at Flamborough (A.F.G.W., A.J.W.), one at Spurn, *c.* 25 at Saltburn (M.A.), and one, perhaps five, near Barnsley (D.S.). *Circa* 10 in Middlesbrough on November 8th (R.McK.), and 200-300 on Carlin How on November 15th (D.R. and P.S.) indicated that immigration was considerable. Waxwings were soon well scattered, mainly in small parties as far as the western boundaries. Haws and wild berries were scarce, probably because the wet summer of 1958 had insufficiently ripened the wood for blossom production in the spring of 1959. In one part of Airedale, Waxwings were mostly in built-up areas, no doubt in search of garden berries (hollies had hardly any) and fallen fruit.

384. Great Grey Shrike (114).—One at Fairburn on January 3rd (L. Magee), one at Redcar on October 11th (D.G.B.); and one south of Melton on November 29th (B.S.P.), were all recorded. None was seen at Spurn.

388. Red-backed Shrike (119).—Occurred at Spurn: one on May 10th, August 25th, September 6th, two on September 7th; and single birds on nine days to September 22nd.

389. Starling (14).—

Ringed, Thornaby-on-Tees, 21/1/58; Hördum Thy (Jutland), Denmark, 30/1/59 (P.A.R.).
Ringed, Thornaby-on-Tees, 21/1/58; Solröd (Sjaelland), Denmark, 11/5/59 (P.A.R.).
Ringed, Thornaby-on-Tees, 3/3/57; Socklot, Nykarleby (Vaasa), Finland, 17/8/58 (P.A.R.).
Ringed, Thornaby-on-Tees, 17/1/55; Fahretoft, near Nieböll, Schleswig-Holstein, Germany, 19/8/58 (P.A.R.).
Ringed, Thornaby-on-Tees, 9/2/58; Vedum (Skaraborg), Sweden, *c.* 1/4/59 (released) (P.A.R.).
Ringed, Thornaby-on-Tees, 20/1/58; Tjörn (Bohus), Sweden, 20/4/59 (P.A.R.).
Ringed, Thornaby-on-Tees, 22/3/58; Warnemunde (Mecklenburg), Germany, 8/5/59 (P.A.R.).
Ringed, Thornaby-on-Tees, 21/3/56; Malgomaj (Västerbotten), Sweden, 11/5/59 (P.A.R.).
Ringed, Thornaby-on-Tees, 10/2/58; St. Nicholaasga (Friesland), Holland, *c.* 7/9/59 (P.A.R.).
Ringed, Thornaby-on-Tees, 27/12/55; near Levanger (Nord-Trondelag), Norway, 28/7/59 (released) (P.A.R.).
Ringed, Thornaby-on-Tees, 22/1/58; Segezha, Karelian A.S.S.R., 25/4/59 (60° 30′ N., 34° 20′ E.) (P.A.R.).
Ringed, Knaresborough, ♂, 11/1/59; Scharbeutz (Schleswig-Holstein), Germany, 25/3/59 (H.N.S.).
Ringed, Knaresborough, ♀, 10/1/59; Vietznitz (Brandenburg), Germany, 2/4/59 (H.N.S.).
Ringed, Knaresborough, ad. ♀, 6/1/58; Glimmen (Groningen), Holland, 3/5/59 (H.N.S.).
Ringed, Knaresborough, ad. ♀, 24/1/58; Slagelse, Denmark, 22/1/59 (H.N.S.).
Ringed, Knaresborough, juv. ♂, 9/3/58; Lithuania S.S.R., 16/5/59 (released) (H.N.S.).
Ringed, Knaresborough, ad. ♂, 26/1/58; Rogaland, Norway, 12/7/59 (H.N.S.).
Ringed, Bewerley, juv. ♂, 12/2/59; Susel (Schleswig-Holstein), Germany, 5/7/59 (H.N.S.).
Ringed, Ottenby, Oland, 30/8/55; Middlesbrough, 17/2/58 } Ottenby
Ringed, Ottenby, Oland, 17/8/56; Scarborough, 19/1/58 } Bird Station
Ringed, Walkington, Beverley, 17/1/59; Norddeich, Ostfriesland, Germany, 17/3/59 (T.M.S.B.).
Ringed, Tarm, Jutland, Denmark, 30/5/58; found (long dead), Easington, 26/6/59 (M. Welton).
Ringed, Spurn, ♂, 26/1/58; Soborg (Sjaelland), Denmark, 21/7/59 (S.B.O.).

Ringed, Spurn, ♂, 27/2/59; East Wretham, near Thetford, Norfolk, 21/7/59 (S.B.O.).
Ringed, Spurn, 4/11/57; Whittington, near Worcester, 24/10/59 (S.B.O.).
Ringed, Spurn, juv., 22/10/58; Snaith, near Goole, 18/3/59 (S.B.O.).
Ringed, Thornaby-on-Tees, 13/2/58; near Bourne, Lincs., 6/1/59 (P.A.R.).
Ringed, Thornaby-on-Tees, 10/1/58; Pickwell, near Melton Mowbray, Leicester, 21/5/59 (P.A.R.).
Ringed, Thornaby-on-Tees, 5/2/55; Hightown, Liversedge (Yorks.), 22/6/59 (P.A.R.).
Ringed, Harrogate, 5/12/52; killed there by cat, 2/4/59 (H.N.S.).
Ringed, Knaresborough, ♂, 6/1/59; Selby, 20/3/59 (H.N.S.).
Ringed, Knaresborough, 7/2/58; Merseyshore, Cheshire, 17/1/59 (H.N.S.).
Ringed, Knaresborough, 26/12/57; Scunthorpe, Lincs., 24/2/59 (H.N.S.).
Ringed, Knaresborough, 25/1/58; Foulridge, Lancs., 19/4/59 (H.N.S.).
Ringed, Knaresborough, 10/1/59; West Tanfield, Yorks., 28/4/59 (released) (H.N.S.).
Ringed, Knaresborough, ad. ♂, 26/1/58; Richmond, Yorks., 29/9/58 (H.N.S.).
Ringed, Bewerley, ♀, 7/2/59; Wickersley, near Rotherham, 30/5/59 (H.N.S.).
Ringed, Knaresborough, juv. ♂, 8/1/58; Adel, near Leeds, 10/11/59 (H.N.S.).
Ringed, Knaresborough, 18/1/59; Littleborough, Lancs., 14/12/59 (released) (H.N.S.).
Ringed, Scawthorpe, 29/3/58; Lille Skensved (S. Jaelland), Denmark, 22/9/59 (R.J.R.).
Ringed, Wassenaar, Zuid Holland, 7/11/58; dead near Wadworth, March 1959 (R.J.R., H.E.S.).

After so much for ringed birds recovered I must omit references to roosts and confine myself to the main mass movements intercepted.

January 10th and 11th at Spurn were like a peak day in autumn. On the 11th, from 8 a.m. to 9-40 a.m., *c.* 3,430 Starlings passed the narrow neck southward; and over 300 turdidae of four species, and many finches (Linnet 374); about 60 Starlings in off the sea at 8-45 were almost exhausted, some of them landing on the beach (C.W.). On the 10th hundreds flew inland at Filey; and a steady stream passed West Ayton coming from the coast. The movement was also noticed at Hull, from Leeds to Castleford (R.F.D.), Shipley and Otley. Week-old snow lay on the ground. Birds from across the North Sea would find little improvement here. It was a mass cold-weather movement from Northern Europe of which only fragments were noted, involving unknown but very large numbers. The Spurn estimates were *c.* 5,000 on the 10th; *c.* 8,500 on the 11th.

Comparative figures did not recur at Spurn until autumn, beginning with the period from October 3rd, with the peak on October 10th of *c.* 10,000 when Starlings passed south all day; and were coming off the sea at Redcar (D.R.S.). November 1st was the peak day of another period at both Redcar and Spurn, when *c.* 5,195 passed *north* at Atwick (G.R.B.), and those at Spurn included *c.* 7,600 that passed westward up the Humber, many following the curve of the Humber shore. Still Starlings continued to come: *c.* 2,000 passed WNW. at Redcar in 1¼ hours on November 8th (D.R.S.), when birds at Atwick were moving south again, as did *c.* 2,530 at Spurn between 7 and 10-30 a.m. (J.C.). Winds on November 1st were north-west to west but south-west to south on the 8th.

391. Hawfinch (18).—The species made its first known appearance at Spurn on October 13th and was ringed. Noted mainly in known haunts—areas around Barnsley, Harrogate, Knaresborough, Leyburn, Catterick, Otley, and Ilkley, nearby where a flock of 15 was seen on February 27th and March 13th (G.H.).

392. Greenfinch (19).—
Ringed, Spurn, 4/10/59; Netteringham, near Lincoln, 8/11/59.
Ringed, Spurn, 5/4/58; dead near Grimsby, 22/12/59.
Ringed, Knaresborough, 29/4/58; Yarm-on-Tees, 10/1/59 (H.N.S.).

Definitely more Greenfinches were in several Yorkshire areas in late autumn than usual; whether they resulted from double broods in a good nesting season, or were immigrants. I suspected a pair of having three broods in my garden. In one finch roost of *c.* 1,200 in early December Greenfinches predominated (R.V.J., A.H.B.L.); and up to *c.* 300 were in several other roosts and flocks.

Phenomenal numbers occurred at Spurn in late autumn with peaks of *c.* 1,300 on October 24th, *c.* 2,000 on November 15th and *c.* 1,500 on November 28th. The

bulk of such birds were counted passing south during the early morning watch at the Narrow Neck. If such birds returned to roost to north of us each evening they must have travelled by another route. If those passing south were fresh birds daily the grand total must have been very large indeed. Seed in the traps, as well as plenty of sea-rocket in seed, no doubt induced more than usual to stay, and a record number were ringed (see Table).

393. Goldfinch (20).—More numerous than for some years in spring in the Harrogate area—ten fed on seed of coltsfoot at Staveley on April 26th (C.W.) and 19 at Knaresborough on the 29th (J.R.M.). General status normal. Recorded at Spurn on many days except during the summer when only occasional. Twenty-two flying south at 08.50 hours in one party on February 17th (H.G.B., E.E.J.) was unusual; and was much the largest number until 38 on October 20th when passage of this species was at its height.

394. Siskin (21).—Near Lindley Wood Reservoir on February 14th a large mixed flock of finches included *c.* 65 Siskins (J.C.L., D.V.); generally flocks were smaller. A pair in Bolton Abbey Wood on May 10th aroused hopes that were unfulfilled (P.Q.). The species was unusually numerous in autumn in many areas—Masham, Airedale, Eccup-Harewood, Swillington Park, Harrogate and Gouthwaite (*c.* 100 in alders at Wath on November 22nd) (A.F.G.W., D.G.L. and others), and Scarborough. Scarce at Spurn until October 10th, when Siskins passed with other finches until late November, with maximum of 33 on October 10th, November 9th and 21st. The species was noted at other places on the coast.

395. Linnet (30).—

Ringed, Spurn, 9/3/58; Altofts, Normanton, 11/3/59.

Pull Ringed, Harrogate, 10/6/55; Rodezno, near Haro (Logrono), Spain, 4/1/56 (H.N.S.).

Bred normally. Flocks included *c.* 500 attracted to mustard seed near Catterick on September 22nd (G.R.P.); and *c.* 1,000 feeding on dock seed at Swillington on September 3rd (A.F., R.W.). *Circa* 700 passed at Spurn on January 10th as part of that remarkable movement. Spring passage at Spurn in late March (*c.* 260 on the 31st) continued in April in smaller numbers; and large numbers appeared daily in autumn with maxima of *c.* 800 on October 3rd and 4th; and *c.* 1,000 on October 19th—similar remarks to those made about the Greenfinches are applicable.

396. Twite (28/29).—Nested near Clapham (W.K.M.); and in the few areas where colonial breeding occurs. Two nests held Cuckoo's eggs on June 1st and 15th (L.C.B.). Noted in upper Nidderdale on May 3rd (M.R.S., A.F.G.W.). *Circa* 40 in a field near Blackmoorfoot on August 3rd would seem to represent a colony including the year's broods (R.Cr.). At Patrington Haven 12-15 on February 1st (R.H., A.V.) and seven on the tide wrack on March 28th would be migrants; as would 14 at Sunk Island on October 25th (R.H., A.V.); two at Filey Brigg on November 7th (R.H.A.); and two feeding on the Spurn Chalk Bank saltmarsh (J.C.).

397. Redpoll (23/25).—Flocks occurred in a number of places in both spring and autumn, at some of which the species is expected. Near Bingley on March 30th *c.* 135 were in a large plantation. A few occurred at Spurn from September 5th to 27th (*c.* 16 on the 20th and 21st), and from six on October 18th to 21 on the 25th, after which appeared casually. Breeding status normal.

401. Bullfinch (32/3).—'More than usual this year' was remarked by a number of observers; and in some districts Bullfinches were quite plentiful, parties of up to 15 being seen. Brightly coloured males, possibly of the Northern race, were seen at Marske on February 1st (D.R.S.), at Spurn on November 8th (J.K. and A.E.F., J.H.I.L.); and near Saltburn in December (F.J.).

404. Crossbill (36).—Exactly how to deal with a 'rarity' reported from some 25 areas at various times in a short paragraph, I do not know. Breeding was attempted near Ilkley unsuccessfully, three nests being robbed probably by Magpies. (O.M.P., J.C.L., G.R.N., M.D.). One nest held three eggs on April 6th.

Near Masham, where Crossbills occurred among conifers and by the Ure on many days throughout the year, a pair carried nesting material in early April but the nest was not found. On May 22nd two adults fed five young that had just left the nest and could only flutter a few feet (E.E.J.).

A pair bred near Lofthouse and had five young just out of the nest on May 2nd (D.S., A.F.G.W.).

Quite probably breeding occurred elsewhere. A family party frequented Silpho Moor, Scarborough, during June (A.J.W.). Parties of adults and juveniles were in

the Helmsley area all summer (A.G., F.J.). At Stanghow flocks occurred from early May, one of *c.* 20 on May 9th being 75 per cent. male; and one of *c.* 30 on August 3rd containing 25 juveniles.

The birds that bred had no doubt remained from the previous autumn. Other pairs were seen; and parties in some areas were apparently not breeding.

One Crossbill, possibly two, was at Spurn on August 3rd; *c.* 8 were at Staithes on June 22nd (W.K.R.), and the species occurred on August 1st, both records being suggestive of immigration in 1959; which was confirmed by flocks and parties inland as far as the western boundary. *Circa* 40 at Lindley Wood on December 14th (R.A.W.P.) was the largest flock.

407. Chaffinch (40/41).—

Ringed, Spurn, 8/4/58; Frogmore, St. Albans, Herts., 24/4/59,

and determined to be of the nominate race. The lining of a nest at Northallerton was composed entirely of dandelion ' clocks ' (J.P.U.).

Circa 150 took part in the cold weather movement of January 10th at Spurn. *Circa* 200 passed south on March 27th at the peak of the spring passage. The period of maximum passage in autumn was October 6th to 11th with *c.* 450 on the 7th and *c.* 500 on the 10th; afterwards to the end of the month numbers varied from *c.* 30 to *c.* 100; after which up to 20 were recorded. *Circa* 15 were noted at Flamborough on October 7th (A.J.Wms.).

At Atwick southward passage of 23 was noted on October 17th; and northward on November 1st (G.R.B.). Redcar dates were: for spring, March 23rd and 28th-29th; for autumn, from September 27th, with Chaffinches passing on many days, including 223 in three hours on November 1st (D.R. and P.S.). Up to 200 were roosting at Gouthwaite Dam on November 28th (A.F.G.W.).

408. Brambling (42).—A very few occurred at Spurn from March 14th to 28th which could only be expected since the autumn passage of 1958 was small, never more than twelve in a day. Twelve were the first of autumn, 1959, on October 2nd; and from the 9th to the 18th never less than 100 were recorded, with maximum of *c.* 400 on the 12th and 13th, after which numbers fell, but not down to twelve until November 3rd. Bramblings came readily to bait and 304 was a larger number than we have ever ringed before in one year.

Occurred at Flamborough in early October, thirteen at Filey on the 11th and eleven at Atwick passing north (as with other species) on November 1st (A.J.Wms., G.R.B.).

Inland flocks in autumn were naturally more frequent than in 1958—*c.* 75 were at Lindley Wood on November 1st, most of which had passed a week later (P.S.). Eighteen coasted north-west at Redcar on November 1st (D.R. and P.S.). After being numerous in the Harrogate area from October 13th to the month end, only odd birds remained (P.J.C.).

409. Yellowhammer (44).—Up to 70 fed in a top-dressed field at Hartwith on January 18th (A.F.G.W.), and *c.* 70 were near Bishop Thornton on January 24th (P.J.C.). *Circa* 40 fed on seeds of hay put out for cattle during severe weather on January 16th.

Some passage was noticed at Spurn (maximum twelve) from March 27th to 31st. October 3rd-4th and October 22nd to 25th; and November 1st (*c.* 30) were periods when most passed in autumn. Forty-two passing north at Atwick on November 1st was unusual.

410. Corn-Bunting (43).—More seen at Spurn than usual, mainly birds passing south; 42 passed in a number of parties, one of 16 birds, on April 4th. On May 23rd, 16 were about the Chalk Bank most of the day, and some occurred to the 31st when eight passed south and one was seen to leave the Point. Such birds could be making for breeding areas.

Corn-Buntings passed on many days from October 23rd (36) to late November, *c.* 50 on November 7th, and 271 on November 15th, passing south between 8 a.m. and 11 a.m. Such a number was unique; it was a day of much movement by Greenfinches, Skylarks and other species. Corn-Buntings were also noted passing south from Atwick on some days from October 17th with 38 as maximum on November 28th. On November 1st, 77 passed north in a falling wind, turning from north-west to west.

Circa 55 came into Fairburn Ings N.R. before dusk to roost on December 5th, but not on the 6th (C.W.); but *c.* 60 were there on the 12th (R.F.D.). *Circa* 50 roosted near Ampleforth on December 12th.

A small breeding colony at Burnt Yates had not been known before (P.J.C.). It is my impression that breeding colonies are rather fewer and smaller than a dozen years ago.

416. Ortolan Bunting (50).—A female gave good views at the Spurn Chalk Bank on May 30th (J.C.). F. J. Walker recorded a male at Spurn on September 6th.

[**420. Little Bunting** (54).—Two small birds were watched for 20 minutes by E. M. H. Scholes at Ingbirchworth on January 10th. A line on a sketch supplied pointed to an area marked ' chestnut ' on the cheek enclosed by a black-brown line. The bird was stated to be distinctly smaller than a Reed-Bunting; but the two species can overlap. It was identified without previous experience of the species from Peterson's *Field Guide to Birds of Britain and Europe*. The date aroused qualms.]

421. Reed-Bunting (55).—Without the addition of Reed-Buntings recorded as passing, numbers at Spurn would not exceed *c.* 20 in winter or summer. *Circa* 30 on March 22nd indicated some arrivals either to stay in the area or pass on. Breeders were fewer than they have been. Autumn passage was in progress on September 7th when 23 passed and larger numbers passed on many days up to mid-November with 163 counted in the morning of the 15th mainly between 9 and 10 a.m. Interest was added to the passage south of 38 on September 19th by the passage north of 59 at Atwick (25 miles to the north) (G.R.B.)—winds were north, shifting back to north-east after a long period from north-east; next morning it had gone south. On September 27th and on October 3rd Reed-Buntings passed south at both places.

Passage at Redcar covered the same periods although it was smaller, with different dates covered. Breeding status was unchanged.

422. Lapland Bunting (58).—Recorded at South Gare, Redcar, Flamborough, Atwick, Patrington Haven and areas near to Spurn; never more than four except at Spurn where 14 occurred on November 14th. One was at Scaling Dam on December 6th (M.A.). April 14th and October 3rd were late and early dates, both at Spurn.

423. Snow-Bunting (59).—

Ringed, Spurn (juv. ♂), 26/12/58; Breiddalsvik, Sudar Mïdasýsla, East Iceland (64° 48′ N., 14° 01′ W.), 8/5/59 – found dead under wires. One found dead at North Coates, across the Humber-mouth.

In the Teesmouth area *c.* 450 wintered (D.G.B.); they moved about and *c.* 400 were at South Gare on February 13th (E.E.J.). Small parties were on stubble and on the beach at Redcar to March 24th (D.R. and P.S.). *Circa* 390 were on fields above Filey Brigg on January 3rd (R.H.A.), and fewer later. Autumn-sown corn had attracted *c.* 200 at Sunk Island on February 9th (A.C.). At Spurn up to *c.* 300 occurred in January and February, and up to *c.* 80 in March, with the last on April 6th. One was at Hornsea on April 19th (G.R.B.). The species occurred elsewhere on the coast; and inland: two above Middlesmoor on January 3rd (S.D.); one on Baugh Fell on February 22nd and *c.* 20 in fields above Winder (P.M.); one on Langsett Moor on February 21st (A. Staney); five on Burley Moor in January (W. Flesher).

Early arrivals in autumn were at Fraisthorpe on September 15th (Miss J.F.), Spurn on the 16th; and Flamborough (H.O.B.) and Gristhorpe (E.G.) on the 20th. Thereafter Snow-Buntings occurred and passed at a number of places on the coast down to Spurn, where *c.* 150 occurred regularly from mid-November. Four passing north at Atwick on November 1st and 57 south on November 8th (G.R.B.) were interesting. *Circa* 20 near Filey Brigg on October 11th had become *c.* 60 by December 28th (R.H.A.). *Circa* 100 were on stubble at Patrington Haven on December 27th (H.O.B.).

Interesting records inland were: *c.* 30 flying west at Stanghow on November 8th (M.A.); and *c.* 20 seeking grit on the road by Scar House Reservoir on December 26th (E.P.I.) where the late H. R. Jukes saw the species in his days there. Smaller numbers were recorded at Blakey Ridge, Lindley Wood, Eccup, Gouthwaite, Harrogate, East Marton, Burley Moor, White Moss, Deerhill, and Thrybergh Reservoir. Snow-Buntings began coming to bait at Spurn at Christmas, and 97 had been ringed by the year end.

424. House-Sparrow (61).—

Ringed, Spurn, as juv., 3/10/57; Humberston, near Grimsby, 28/3/59.

Ringed, Spurn, as juv., 16/10/57; Middleton, near Pickering (57 m. north-west), 3/7/59.

This last bird's journey was the longest yet proved by our ringings of this species.

At Spurn until early September, *c.* 100 was the maximum recorded in a day,

probably all local birds. Then large numbers began to pass during the early morning watches. On October 19th 1,598 passed south at the Narrow Neck from 6.40 to 8.50 a.m. On November 21st *c.* 2,680 ' sparrows ', mainly *domesticus*, passed south from 07.05 to 11.30 hours. These were days of maxima but considerable numbers passed on other days. Whether such movements represented real changes of habitat in action, or if the birds were leaving fixed roosting areas in search of fresh feeding areas could not be answered. If the latter, the same birds might be included on several days. Certainly an abnormal number of *fresh* House-Sparrows continued to be caught and ringed.

Flocks of House-Sparrows passed at Redcar on November 1st and appeared to be migrating (D.R.S.). At Atwick 1,352 passed north on November 1st (G.R.B.). The species would appear to be worth more attention than has seemed its due in past years. House-Sparrows with white parts occurred in several areas.

425. Tree-Sparrow (62).—Breeding status apparently normal. More numerous inland in autumn than usual, including at places where usually seldom seen. A flock on November 8th of *c.* 50 at Gouthwaite with Chaffinches was very unusual (A.F.G.W.). Passage at Redcar was noted on several days in March to April; and in autumn from late September—' hundreds ' passed on November 1st (D.R.S.). At Spurn, Tree-Sparrows were only occasional until October; from the 18th considerable numbers passed daily, 582 being recorded on the 20th with up to *c.* 400 on several other days.

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BOOK REVIEWS

Zulu Journal, by **Raymond B. Cowles.** Pp. xiv + 267 with 67 photographic illustrations and one map. University of California Press, and (agents) Cambridge University Press, 1960, 48/- net.

Professor Cowles' style has a forthright simplicity that evokes at once the authentic atmosphere of the land he knows so intimately. These 'Field Notes of a Naturalist in South Africa' have matured in the chrysalis of a sensitive mind to emerge on winged prose, gaining much from anecdotal content whether he is writing of termites, snakes, Nile monitors or rhinos. There is no attempt at text-book fullness, but a satisfying viewpoint is achieved by the inclusion of large sections on big game, birds, small animals and Man. Due weight is given to Africa's formidable demographic problem, seen in sharp relief against a background of ecological disturbances. The game sections draw on a wealth of experience in the Reserves. The bird section is also excellent, though one could wish that the nomenclature were that of the revised edition of Austin Roberts' standard work. The work is careful, well produced and very well illustrated with monochrome photographs and a few line drawings.

G. E. Pringle.

Living Earth, by **Peter Farb.** Pp. ix + 178, 8 plates and numerous text figures. Constable and Company Ltd., London, 1960, 21/-

The ecology and biology of the soil concern a hidden realm of nature which, in spite of its fundamental importance and a voluminous literature of specialised studies, still lacks adequate general treatment at the text-book level. By a rare combination of journalistic skill and the dedicated enthusiasm of a naturalist the author has provided in this small volume, written for the layman, a comprehensive and up-to-date survey of soil biology which is as informative as it is readable.

Although American examples are often used the universal character of many important aspects of life in the soil, and the notably distinguished contributions of British workers to studies in the field, make much of the text directly relevant to our own scene and in the detailed treatment of forest, grassland and desert the familiar and the unfamiliar present themselves in rewarding juxtaposition in a context wider than this country can provide. A book of this kind is vulnerable to academic criticism and here brevity or enthusiasm for the arresting phrase has led to error in the misleading exposition of the water relations of plants and to romantic speculation on the nature of primeval conditions. The quality of the book lies in the deftness with which space has been found for the relevant detail, whether it be a quotation and concise assessment of the work and character of a pioneer worker, or a well informed and critical account of the biology of a particular organism.

This book can be commended to naturalists, farmers, teachers and students as well as to the general reader, all of whom will read it with pleasure and find permanent features of value in the excellent original plates and figures and in a bibliography which is annotated and selected with a nice judgement from scholarly and accessible sources.

A. D. Greenwood.

Thousand Acre Marsh, by **Dudley Cammet Lunt.** Pp. 173. The Macmillan Company, New York and London, 1959. 26/-.

The experiences in 'this span of remembrance', the author tells us, have been gathered out of a life-time along the coasts and in the woods in the State of Maine, and in the hill country and coastal plain of Delaware. The author is essentially a sportsman-naturalist and the experiences which he recounts follow one another almost at random. This is not to say that the book is disjointed—it is arranged in four seasonal sections—but rather that it has the effect of making us feel that we are remembering, with the author, incidents and scenes which we, too, had stored away in our own subconscious. The style is reminiscent of Richard Jeffries. There are delightful descriptions of the country scene in general and shrewd observations on plant, bird and animal life. It is a book which may be picked up and dipped into time and again, and which will delight with each fresh reading. Much of the material originally appeared as articles in American newspapers.

R.F.D.

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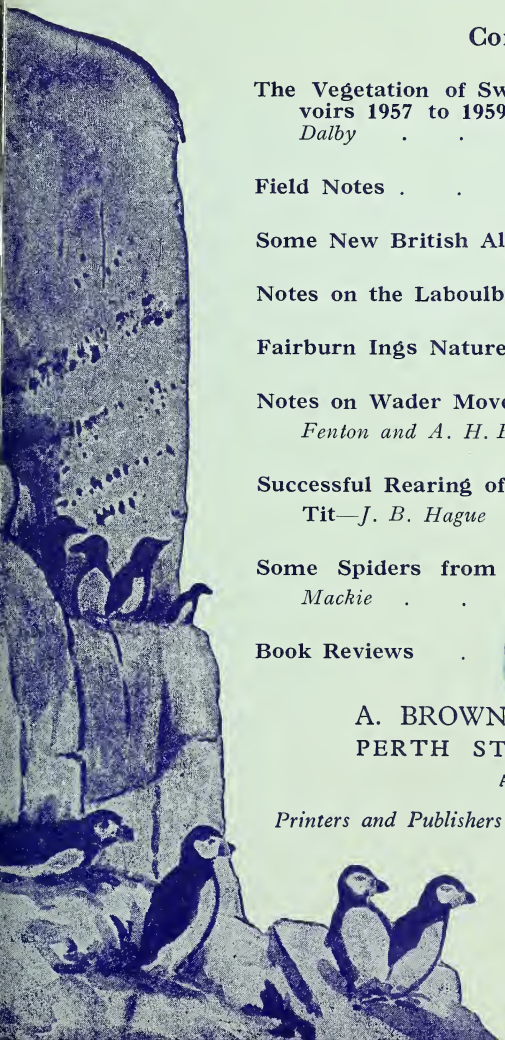

Contents

PAGE

The Vegetation of Swinsty and Fewston Reservoirs 1957 to 1959—*Joan E. Duncan and Mary Dalby* 81-88

Field Notes 88, 109-110

Some New British Algae—*J. W. G. Lund* . . 89-96

Notes on the Laboulbeniales—*W. D. Hincks* . 97-102

Fairburn Ings Nature Reserve—*R. F. Dickens* . 102

Notes on Wader Movements in Yorkshire—*J. K. Fenton and A. H. B. Lee* 103-106

Successful Rearing of a Tree Sparrow by a Blue Tit—*J. B. Hague* 107-108

Some Spiders from North Perthshire—*D. W. Mackie* 108-109

Book Reviews 106, 111-116

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YORKSHIRE NATURALISTS' UNION

Ornithological Section—Preliminary Notice

An additional meeting of the Ornithological Section has been arranged for Saturday, November 12th, 1960. This will be in conjunction with the York and District Field Naturalists' Society, and will be held in the House of Laymen, St. William's College, York. St. William's is situated close to the east end of York Minster in the centre of the city.

The afternoon session, starting at 2-30, will consist of a series of short papers. Cups of tea will be available for anyone wishing to bring their own food. After tea it is hoped to have a showing of some bird films. The evening session will start at 6-0 p.m.

THE CLEVELAND NATURALISTS' FIELD CLUB

has arranged for the R.S.P.B. film, 'Sea-bird Summer', to be shown on October 10th.

This full length colour film is the latest of the famous R.S.P.B. films, and it features a variety of sea-birds set against the background of the fine cliff scenery of Pembrokeshire and its offshore islands. Also featured are shots of the animals and plants of the area.

The film will be shown in the Middlesbrough Little Theatre on Monday, October 10th, at 7-30 p.m. Tickets will be 2/6 each, and we can make block bookings if required. There are good parking facilities at the theatre.

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Y.N.U. Subscriptions for 1960 (**20/-**) were due on January 1st, and should be sent to The Assistant Treasurer, Mr. G. A Shaw, Botany Dept., The University, Leeds, 2.

In order to effect a saving on postage the Assistant Treasurer will not, in future, send receipts for payments made by cheque, unless specially requested to do so.

NOTICE.

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THE VEGETATION OF SWINSTY AND FEWSTON RESERVOIRS 1957 to 1959

JOAN E. DUNCAN AND MARY DALBY

The primary object of studying the vegetation around Swinsty and Fewston reservoirs in the Washburn Valley was to complete the appropriate mapping card for the Distribution Maps scheme of the Botanical Society of the British Isles. These two reservoirs both lie in the 10 km. grid square 44/15, which is one of the squares undertaken by the Wharfedale Naturalists' Society Botanical Section. The work of mapping has led to study on a more ecological basis, related particularly to the conditions found beside reservoirs as distinct from those by natural lakes.

The writers have had facilities for visiting the precincts of the reservoirs at two to three week intervals from May to September during the past three years. The weather conditions could scarcely have been better for comparative study. 1957 was a dry summer and the water levels fell considerably; in 1958 there was so much rain that the areas which had been exposed the previous year and given so much of interest remained tantalisingly submerged. However, the long drought of 1959 made the reservoirs even more worthy of study.

Swinsty reservoir, which was completed in 1876, lies just down river from Fewston, completed in 1879, and the overflow from Fewston to Swinsty runs at the south side of Fewston embankment. The distance from the Fewston inlet at Blubberhouses Bridge to the embankment is just over $1\frac{1}{4}$ miles, and the length of Swinsty following the curve of the reservoir about 1 mile. In no part is either as much as $\frac{1}{2}$ mile wide. The banks of both reservoirs are comparatively shallow, except for two steep banks at Fewston. Natural and planted woodlands surround the reservoirs, with rough pasture at the south side of the top end of Fewston.

The immediate surroundings are of coarse vegetation with such species as *Deschampsia caespitosa*, *Phalaris arundinacea*, brambles and Rosebay. In the sheltered end of Fewston bay are some willows (*Salix cinerea* agg.), and Swinsty, which is more sheltered, has quite a good growth of these.

Geologically the area is on the millstone grit and the vegetation as a whole is typical of grit soils. An interesting feature of Fewston is the section of the Cayton Gill 'Shell Bed' about $\frac{1}{4}$ mile west of the lodge, and on the bank here a few plants of *Polygala vulgaris* are indicative of the presence of lime in the soil.

Unlike a natural lake, a reservoir shows considerable rise and fall of water level, giving a wide shore at times, subject to wave action in unsheltered parts. Such rise and fall could prevent the establishment of vegetation on the shore, except when the water level is consistently falling. The long drought of 1959, when from January to the middle of October less than 60 per cent. of the normal rainfall for that period was recorded in Washburndale, caused the exposure of very extensive areas of ground and revealed the original course of the river and its tributaries. The reservoirs must have fallen as low as they ever have been, and by the first week of September no more water was being withdrawn from Swinsty, the small amount which remained being kept to safeguard the fish. The amount of water remaining in Fewston was also greatly reduced.

The water level continued to fall from June onwards, so there was ample time for plants to become established on the exposed ground. Most of these were annuals which must have grown from seeds buried in the mud, in some cases perhaps for many years. The spectacular growth and flowering of these plants was not indiscriminate, for there were areas almost bare of vegetation, yet having been exposed for as long as the thickly-covered regions.

The effect of fluctuating water levels on the growth of plants and the nature of the soil bed are the most important ecological factors. It has been found that the soil varied greatly in the different parts of the exposed areas, ranging from clay, which dried out, cracked and formed thick concave flakes, to loose gravel. Samples of soil were taken from selected parts, and Table I shows the nature of these, and the vegetation growing on each kind.

In relation to the two important factors mentioned, the areas and their vegetation can be classified under the following headings:

1. Parts occasionally submerged, but exposed during summer and autumn even in wet weather:

Here the vegetation is very thick, and on some of the parts first exposed a closed turf community develops. In the wetter parts there is a good accumulation of silt and humus in which grow such plants as *Juncus effusus*, *Phalaris arundinacea*, several species of *Carex*, and *Eleocharis palustris*.

SMITHSONIAN INSTITUTION JUL 25 1960

TABLE I

SELECTED SOIL SAMPLES

	Station	*Type of Soil*	pH	*Vegetation*
A	Fewston: inlet at Blubberhouses bridge	silty	5·5	*Juncus articulatus* *J. bufonius* *J. bulbosus* *J. effusus*
B	Do.	more sandy than A	6·0	Do.
C	Fewston: tributary into bay	wet mud	7·0	Nil
D	Fewston: bay	silt and clay	5·5	*Pseudephemerum nitidum*
E	Fewston: clay bank	yellow clay	5·5	very few seedlings
F	Do.	blue clay overlying dead beech leaves	5·5	Do.
G	Do.	grey laminated clay	6·5	Do.
H	Fewston: exposed bay subjected to wave action	fine sand overlying layers of dead beech leaves	6·5	Nil
I	Swinsty: shore with gentle slope	sand and silt	7·0	*Gnaphalium uliginosum*
J	Do.	sandy	7·0	*Littorella uniflora*
K	Do.	gravel	7·0	*Polygonum hydropiper*, *Tripleurospermum maritimum* ssp. *inodorum*

2. Parts normally exposed during summer and autumn when the water level falls:

The extent of this area varies according to rainfall, and on the areas nearest to the water's edge, much the same species occur as higher up.

(*a*) In the gravelly and sandy parts which dry out the two most conspicuous plants are *Tripleurospermum maritimum* ssp. *inodorum* and *Gnaphalium uliginosum* which both cover large areas. *Polygonum persicaria* and *P. hydropiper* are abundant, and amongst them scattered plants of *P. lapathifolium*. The long stems of *P. amphibium* are laid out on the shore as the water level falls, the plant then assuming the typical terrestrial form. *Bidens tripartita*, *Rorippa islandica*, *Spergula arvensis*, and miniature plants of *Plantago major* are others typically appearing as the littoral zone increases in extent.

The zone of *Littorella uniflora* where present is normally exposed except in very wet summers, and the plants flower after exposure.

(*b*) Where springs and streamlets occur the soil is finer and the mud remains wet. Some of the typical plants are *Equisetum fluviatile*, *Montia fontana*, *Peplis*

portula, Epilobium obscurum, E. palustre, Callitriche stagnalis, Hydrocotyle vulgaris, Myosotis scorpioides, M. secunda, Veronica beccabunga, V. scutellata, Galium palustre, Juncus bufonius, J. bulbosus and *Carex demissa.*

3. Parts exposed only at more or less long intervals in very dry summers:

(*a*) Mud: some muddy areas dry fairly gradually, giving seedlings time to establish themselves before the mud becomes dried out and cracked. The muddy areas best covered by vegetation in 1959 were on Swinsty where *Limosella aquatica* appeared, together with several interesting bryophytes which will be referred to later. Apparently similar areas on Fewston were only sparsely covered, some being almost devoid of vegetation.

(*b*) Clay bank: this region is on Fewston just west of the lodge, and only occasional very stunted seedlings of *Polygonum* species were able to grow on the clay which dries into such hard cakes. The presence of several varieties of clay here, unlike anything found elsewhere on the reservoirs, and the fact that some of it overlies layers of beech leaves, seem to suggest that it is not of natural origin. It might possibly be the left-overs of the clay which may have been used as the central filling for the stone-built Fewston dam.

4. Dams and outlets:

The growth habit of plants here is more interesting than the actual species, since all those found, except for *Aira praecox*, are normal plants of the surrounding woods and sand flats.

Creeping plants root in the cracks repeatedly. One specimen of *Agrostis stolonifera* on the outlet from Fewston to Swinsty had grown in the direction of the flow of water to a length of 71 inches. Another species with very long runners was *Potentilla anserina* on sand, two measurements being 33 inches and 59 inches.

Near Fewston bridge below the high-water mark where the water is generally shallow, large areas were covered with *Fontinalis antipyretica*, whilst *Rhacomitrium aciculare* was abundant on the rocks, outlets and steps.

Some plants which have been found during the investigation although not specially relevant to the ecology, are perhaps worthy of mention.

Growing amongst the sedges and rushes just above the normal high water mark is *Climacium dendroides*. There is a rich flora of mosses on the rocks and walls, including *Grimmia stirtoni, Ptilidium ciliare, Barbula cylindrica, Frullania dilatata* and *Drepanocladus uncinatus.*

Lythrum salicaria was found for the first time in 1959 by a tributary of Swinsty, and *Hypericum humifusum* and *Juncus tenuis* grow on the dam stones of this reservoir. At the top end of Swinsty are a few tussocks of *Carex paniculata,* and a patch of *Sparganium emersum.* There is also a good spread of *Alopecurus geniculatus,* and in 1959, *A. aequalis* (*A. fulvus*) was found. E. J. Salisbury (1921) cites the latter species as appearing in quantity in reservoirs when apparently not there in previous years.

Fewston, too, has some special plants. There is a single large patch of *Scirpus lacustris* and two of the Fewston tributaries have patches of *Scirpus sylvaticus.* In a part usually exposed *Eleocharis multicaulis* (det. Dr. Walters) was found.

Finally Fewston yielded *Juncus filiformis*, a record new to Yorkshire. The plants appeared to be well established, and must have been there for several years. Two patches were found, one on each side of the reservoir and almost directly opposite to one another.

Discussion.

Little seems to have been written on the ecology of reservoir beds owing no doubt to their sporadic appearance. Salisbury (1921) describing three reservoirs in Hertfordshire and Middlesex, points out the desirability of placing observations on this type of habitat on record because of its 'inconstant occurrence'. H. Stuart Thompson (1929) writing on 'Drought and Vegetation at Blagdon Reservoir' in Somerset records about 70 phanerogams on the shore. Our list for the two Washburn reservoir shores numbered 71 in 1957 when the investigation began, although several additional species were observed in 1959. There is such a striking correspondence between the species recorded on the exposed mud of Swinsty and the muddy areas described by Salisbury and Stuart Thompson that these plants are evidently to be regarded as particularly characteristic of such habitats

Conditions affecting colonisation will vary according to substratum and exposure. Wave action on an easily shifted sandy or silty substratum will effectively prevent colonisation through dislodgment and removal of seedlings. But a steadily falling water level will progressively expose bare ground which will then become available for the establishment of seedlings. Much of the exposed beds of Swinsty and Fewston reservoirs became colonised, the concentration of plant cover decreasing roughly with fall in level, and zonation according to age was often apparent, from fruiting plants at higher levels to seedlings of the same species on the more recently exposed ground. Variation in luxuriance corresponding with sandy or silty areas and stony areas was also noticeable in places. Some parts showed lines of plants which may have resulted from deposition of seeds by gentle wave action.

The alga *Botrydium granulatum* commonly appears at an early stage in succession on freshly exposed mud and this was abundant on parts of Swinsty together with *Riccia crystallina* which occurred in great quantity. Other bryophytes notably abundant at Swinsty and particularly characteristic of exposed mud were *Pseudephemerum nitidum*, *Physcomitrella patens* and the much rarer *Physcomitrium sphaericum*. The last named is sporadic in its occurrence throughout Britain but the habitat conditions in its few recorded stations all correspond to those at Swinsty.

As regards flowering plants, *Gnaphalium uliginosum*, which is one of the species common to the Washburn reservoirs and those described by Salisbury and Stuart Thompson, appeared at Swinsty in enormous numbers and at all levels from the highest to the lowest exposures. *Chenopodium rubrum* is another species which appears to be especially characteristic of exposed mud. At Swinsty it varied in stature from plants which exceeded a foot in height on the higher and earlier exposed parts, down to miniature plants less than an inch tall but producing flowers, on the lower reaches. This diminutive form is so distinctive as to have a varietal name *pseudobotryoides*. It appeared on both the Hertfordshire and Somerset reservoirs, and on the exposed mud at Welsh Harp, Salisbury reports it as forming over 70% of the plant cover.

The appearance at Swinsty in 1959 of very large numbers of *Limosella aquatica* was of particular interest. The only other known West Riding station for this plant used to be at Adel Dam near Leeds where, before the war, it could be found on the muddy margin of the pool. During the war the water was drained from the Dam and the invasion of the mud by coarse grasses and sedges led to the disappearance of both this and *Tillaea aquatica*. The reappearance of *Limosella* at Swinsty was therefore a notable addition to the flora. Although growing in quantity over a considerable area, careful search failed to reveal it elsewhere at Swinsty or at Fewston. It seems certain that the seeds must have originally been brought by wildfowl, more likely in dried mud on their feathers than on their feet, and it is also evident that the original introduction must have occurred some considerable time ago to account for the increase to the present numbers.

There is again a striking similarity here to Salisbury's experience at Little Tring where, in 1919 *Limosella* although unknown there previously ' occurred in such quantity as to give a lawn-like appearance to the mud which it covered '. He refers to experiments on germination of aquatic plants showing that in order to germinate, their seeds require desiccation following long periods of immersion. The evidence points to the necessity for prolonged and continuous exposure before the conditions are satisfied for the successful development of *Limosella* from seeds which may remain immersed for many years without losing their viability. Salisbury records a pH value of 7.2–7.6 for the muds of the Hertfordshire reservoirs. That at Swinsty was 7.0 whilst soils tested at Fewston were slightly acid. A neutral or slightly alkaline mud may therefore be another factor required for the successful germination of this species, for introduction by birds is likely to have occurred at Fewston as well as at Swinsty.

In a few years' time a new reservoir will be made at Thruscross higher up the river, and we are compiling for future reference a list of species found in the area to be flooded. The colonisation and composition of the shore vegetation of this new reservoir should yield information of interest for comparison with the older reservoirs of Fewston and Swinsty.

List of Species

A complete list of species noted in the different zones at Fewston and Swinsty is given in the following table. Species recorded by Salisbury and Stuart Thompson from reservoirs in Hertford, Middlesex and Somerset have been added for comparison though Stuart Thompson's paper does not give a complete list of the plants he observed. The comparison with the southern reservoirs lies with zones 2 and 3 at Fewston and Swinsty.

SPECIES	SWINSTY and/or FEWSTON							Little Tring, Herts.	Elstree, Herts.	Welsh Harp, Middlesex	Blagdon, Somerset
	Surrounding vegetation	occasionally submerged	dry (normally exposed in summer)	wet (normally exposed in summer)	mud (infrequently exposed)	clay (infrequently exposed)	dams and outlets				
		1	2a	2b	3a	3b	4				
Botrydium granulatum (L.) Grev.					+			+		+	+
Riccia crystallina L.					+						
R. glauca L.					+						
R. sorocarpa Bisch.					+						
Pseudephemerum nitidum (Hedw.) C. Jens.					+						
Physcomitrella patens (Hedw.) B. & S.					+						
Physcomitrium sphaericum (Schk.) Brid.					+						
Hypnum patientiae Lindb.					+						
Fossombronia wondraczeki (Corda) Dum.					+						
Climacium dendroides (Hedw.) Web. & Mohr	+	+									
Grimmia stirtoni Schp.	+										
Ptilidium ciliare (L.) Nees	+										
Barbula cylindrica (Tayl.) Schp.	+						+				
Frullania dilatata (L.) Dum.	+										
Drepanocladus uncinatus (Hedw.) Warnst.	+										
Fontinalis antipyretica Hedw.		+									
Rhacomitrium aciculare (Hedw.) Brid.		+					+				
Equisetum fluviatile L.				+							
E. palustre L.				+							
E. sylvaticum L.	+										
E. arvense L.	+										
Dryopteris filix-mas (L.) Schott	+						+				
Athyrium filix-femina (L.) Roth.	+						+				
Botrychium lunaria (L.) Sw.		+									
Ophioglossum vulgatum L.	+	+									
Caltha palustris L.				+							
Ranunculus flammula L.				+			+		+		
R. repens L.	+						+	+		+	
Cardamine pratensis L.	+										
C. flexuosa With.	+										
Rorippa islandica (Oeder) Borbás			+				+	+	+	+	+
Viola riviniana Reichb.	+						+				
Polygala vulgaris L.	+										
Hypericum tetrapterum Fr.	+										
H. humifusum L.		+					+				
Stellaria nemorum L.	+										
S. alsine Grimm				+							
Sagina procumbens L.	+						+				
Spergula arvensis L.			+								
Spergularia rubra (L.) J. & C. Presl					+						
Montia fontana L.				+							
Chenopodium rubrum L.		+	+		+						+
C. rubrum var. *pseudobotryoides* Wats.					+			+		+	+

TABLE II—LIST OF SPECIES (*continued*)

SPECIES	SWINSTY and/or FEWSTON										
	Surrounding vegetation	occasionally submerged	normally exposed in summer: dry	normally exposed in summer: wet	infrequently exposed: mud	infrequently exposed: clay	dams and outlets	Little Tring, Herts.	Elstree, Herts.	Welsh Harp, Middlesex	Blagdon, Somerset
	1	1	2a	2b	3a	3b	4				
Atriplex patula L.			+					+		+	+
Trifolium repens L.	+	+	+					+			
Lotus corniculatus L.	+										
L. uliginosus Schkuhr	+	+		+							
Rubus fruticosus L.	+										
Potentilla anserina L.	+	+	+					+	+	+	
P. palustris (L.) Scop.	+										
Filipendula ulmaria (L.) Maxim.	+										
Alchemilla vestita (Buser) Raunk.	+										
A. xanthochlora Rothm.	+										
A. glabra Neygenf.	+										
Sanguisorba officinalis L.	+										
Chrysosplenium oppositifolium L.	+										
Lythrum salicaria L.				+							
Peplis portula L.		+	+	+			+	+	+		
Epilobium obscurum Schreb.	+			+							
E. palustre L.				+							
Chamaenerion angustifolium (L.) Scop.	+						+				
Callitriche stagnalis Scop.				+	+			+	+	+	
Hydrocotyle vulgaris L.		+		+							
Angelica sylvestris L.	+										
Mercurialis perennis L.	+										
Polygonum bistorta L.	+										
P. amphibium L.		+	+	+				+	+	+	
P. persicaria L.		+	+			+	+			+	
P. lapathifolium L.		+	+								
P. hydropiper L.		+	+			+					
Rumex crispus L.	+	+									
Salix cinerea L. agg.	+										
Myosotis scorpioides L.		+		+							
M. secunda A. Murr.		+		+							
Solanum dulcamara L.	+							+	+	+	
Limosella aquatica L.					+			+			
Digitalis purpurea L.	+										
Veronica beccabunga L.		+		+				+	+	+	
V. scutellata L.		+		+							
Mentha arvensis L.	+	+					+				
M. aquatica L.		+									
M. aquatica × *arvensis*		+	+								
Prunella vulgaris L.	+						+				
Betonica officinalis L.	+										
Stachys palustris L.	+	+									
Galeopsis tetrahit L. agg.	+	+									
Scutellaria galericulata L.	+	+					+		+		
Plantago major L.		+	+				+	+	+	+	
Littorella uniflora (L.) Aschers.			+				+				+
Galium saxatile L.	+						+				
G. palustre L.	+	+		+							
Bidens tripartita L.		+	+				+	+	+	+	
Senecio aquaticus Hill		+							+		
Tussilago farfara L.	+						+				

TABLE II—LIST OF SPECIES (*continued*)

SPECIES	SWINSTY and/or FEWSTON										
	Surrounding vegetation	occasionally submerged	normally exposed in summer: dry	normally exposed in summer: wet	infrequently exposed: mud	infrequently exposed: clay	dams and outlets	Little Tring, Herts.	Elstree, Herts.	Welsh Harp, Middlesex	Blagdon, Somerset
		1	2a	2b	3a	3b	4				
Petasites hybridus (L.) Gaertn.	+										
Gnaphalium uliginosum L.		+	+		+		+	+	+	+	+
Solidago virgaurea L.	+										
Achillea ptarmica L.	+	+					+				
Tripleurospermum maritimum (L.) Koch var. *inodorum* (L.) Hyland		+	+		+	+	+				+
Cirsium palustre (L.) Scop.	+										
Leontodon taraxacoides (Vill.) Mérat	+	+					+				
Taraxacum officinale Weber agg.	+						+				
Crepis capillaris (L.) Wallr.	+										
Endymion non-scriptus (L.) Garcke	+										
Juncus tenuis Willd.							+				
J. bufonius L.		+		+	+			+	+	+	+
J. effusus L.	+	+	+	+							
J. conglomeratus L.	+	+									
J. filiformis L.	+										
J. acutiflorus Ehrh. ex. Hoffm.		+									
J. articulatus L.		+		+			+				
J. bulbosus L.		+		+	+		+				
Luzula pilosa (L.) Willd.	+										
L. sylvatica (Huds.) Gaud.	+										
Listera ovata (L.) R. Br.	+										
Dactylorchis fuchsii (Druce) Vermeul.	+										
Sparganium emersum Rehm.		+									
Eriophorum angustifolium Honck.		+									
Scirpus sylvaticus L.		+									
S. lacustris L.				+							
Eleocharis palustris (L.) Roem. & Schult.		+		+					+		
E. multicaulis (Sm.) Sm.				+							
Carex demissa Hornem.		+		+			+				
C. rostrata Stokes		+									
C. vesicaria L.		+									
C. pallescens L.	+	+									
C. panicea L.		+									
C. flacca Schreb.	+	+									
C. hirta L.		+									+
C. acuta L.	+	+									
C. nigra (L.) Reich.	+	+					+				
C. paniculata L.		+									
C. remota L.		+									
C. curta Gooden	+										
C. ovalis Gooden.	+										
Molinia caerulea (L.) Moench		+									
Poa annua L.	+	+						+	+	+	
Arrhenatherum elatius (L.) Beauv.	+						+				
Aira praecox L.							+				
Deschampsia caespitosa (L.) Beauv.	+						+				
Agrostis stolonifera L.		+	+				+				
Alopecurus geniculatus L.		+	+					+	+	+	
A. aequalis Sobol.			+					+	+		
Phalaris arundinacea L.	+	+					+				

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We should like to thank Miss C. M. Rob, Dr. F. M. Perring, Dr. W. A. Sledge, Mr. E. C. Wallace and Dr. S. M. Walters for kindly identifying specimens from time to time, and Dr. Sledge for his invaluable help and advice.

FIELD NOTES

Garden-Trapping at Thornaby-on-Tees, 1950 to 1958.—Our Tees-side garden was ill-situated to attract many birds except during hard weather and the consequent cessation of disturbance by our neighbours; then starlings would come in such numbers as virtually to exclude all other small species. Apart from starlings however, over 500 birds covering 20 species were ringed and from these the most important recovery was, undoubtedly, the hen blackbird in Kaliningrad, in April, 1955. This is the only British ringed blackbird yet recorded from the U.S.S.R. and the first recovery to suggest the new movement, now more apparent, amongst East Baltic blackbirds. Mention must be made, too, of how the 1957 Tit irruption was shown up in sharp relief in our ringing totals and how this sudden increase in our tit-ringing totals was of real significance because our large garden trap had been manned almost daily since 1953, when it was erected. From July to December, 1957, we ringed nine times the average for the previous four years !

The ever pushful starlings gave us the most work and excitement, and produced the most interesting recoveries. At times they came so fast that, though we caught over 3,000, we often were overwhelmed and had to allow the birds free access to the trap and food. For instance, one morning at first light the trap was cleared of snow and baited and within 15 minutes the floor was black with birds feeding shoulder to shoulder. We filled all our collecting boxes, ringed many straight from the trap but were forced to let scores go without rings. It was the second occasion when we had had over 300 birds in the trap at one time. But in spite of our inability to deal with all the starlings that came our way, well over 2,000 were ringed of which 25 have, so far, been reported from abroad as follows: Norway 1; Sweden 4; Denmark 4; Holland 4; Germany 5; Finland 1; Poland 3; Lithuania 1; Finno-Russia 1; and Russia 1. Most of the birds released without being ringed by us were quickly examined for existing marks and in this we were rewarded by finding our first Dutch and Russian rings.

If you cannot visit Scandinavia and the Baltic Countries why not extend a welcome in your garden to the starlings that do do so ?—Mr. and Mrs. P. A. RAYFIELD.

Shore Lark at Fairburn.—While walking along the Fairburn to Newton road, near Castleford, on 1st January, 1960, I was watching a party of Skylarks and mixed finches on a partly-ploughed stubble field a quarter of a mile west of Fairburn village. Close to the Skylarks, on the unploughed part, I found a Shore Lark (*Eremophila alpestris* (Linnaeus)). The bird was under observation for only a few seconds before a passing bus put to flight the larks and finches, the Shore-Lark closely following. It continuously gave a 'truvp' call-note. All the birds later alighted a few hundreds yards away from the road. On the following day, W. C. Wakefield and later G. R. Naylor and M. Densley, heard unfamiliar call-notes coming from the area but were unable to see the bird, Several visits during the next few days produced nothing.

Yorkshire Birds (Chislett, 1952) gives no inland record for Shore-Larks. In *The Birds of Yorkshire* (1907), Nelson comments that although many migratory flocks are seen to pass on inland he had only one record of Shore-Lark inland. Two were shot ' many years ago ' at Harewood, near Leeds.—C. WINN.

SOME NEW BRITISH ALGAE

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1. *Scenedesmus quadricauda* (Turp.) Bréb.—a syncoenobial form and a consideration of other syncoenobia. Fig. 1, A-H.

The cells (16-20μ l.; 5-8μ br.) are elliptic to elliptic oblong and there is normally one sub-terminal spine on each outer cell, rarely two spines (fig. 1, F). The alga was common in the plankton of Buckenham Broad, Norfolk in July, 1956.

While specialists differ about the limits of this species (Smith 1918, Chodat 1926, Dedussenko in Korshikov, 1953) these specimens would be placed in it by all of them. They belong to a world-wide group of taxa which are present in almost every lake or pool. These British specimens are, however, peculiar in that they form syncoenobia of the type described for *S. armatus* Chod. by Deflandre (1924, Pl. VI, figs. 18-20).

The developmental process in the present form is normal. Cell division leads to the formation of a cruciate bundle (fig. 1, A, D) as described by Smith (1913, 1914) for *Scenedesmus* Meyen and *Tetradesmus* Smith. He says that in *S. quadricauda* the cells are liberated through a split in the parent wall as the bundle unrolls. Chodat (1926, pp. 75-76) says the cells in *Scenedesmus* are liberated as a fascicule which unrolls afterwards. Skuja's (1956) fig. 24, Taf. XXVIII shows that, in addition, the fascicule can break up before liberation so that the cells lie in one plane within the unbroken membrane of the mother cell. In this case unrolling is scarcely possible. The cells must be forced into a line as a result of the mutual pressure between the wall of the mother cell and the enlarging autospores.

In the present case the final stages of development follow Smith's (1913, 1914) description. The basal cells of the new colony, however, remain within the ruptured membrane of the parent cell so that a syncoenobium of sixteen cells is produced (fig. 1, E). Some of the cells of this may divide and produce colonies of up to thirty-two cells. Partially developed colonies with larger numbers of cells were seen. However, production of complete compound colonies of the third generation is virtually impossible. Each new generation arises at right angles to the old one (fig. 1, B-D) and so the nearer the cells of the second generation are to the base of the colony, the closer they are to the cells of neighbouring constituents of the syncoenobium. The basal cells themselves are still within the ruptured walls of the first generation. Thus the new colonies produced by these basal cells are likely to break the parent colonies apart, as has happened in the colony depicted in fig. 1, D. Here the grandparent colony has been split in two and so consists of two cell membranes only, while the daughter and grand-daughter colonies are of four cells. Possibly dissolution of the grandparent walls also occurs.

Steiniella graevenitzii Bernard (1908) is a syncoenobial *Scenedesmus* (Chodat 1926, sub. *S. ovalaternus* var. *graevenitzii*) but seems to differ in that the daughter coenobia are attached to remnants of the parent walls and are not held basally within the empty mother cells. *S. cohaerens* Fritsch (1917) forms much larger, flat, rectangular syncoenobia by a different method of development. Syncoenobia are recorded for *S. curvatus* Bohlin (1898) and *S. hystrix* Lag. (Selk 1907). In the former the daughter colonies seem to lie for a time within the parental membrane; for the latter no details are given. The ' dactylococcoid ' stages recorded for several species by Chodat (1926) represents yet another method of forming loose syncoenobia. It appears that as the cells of each fascicule separate they become attached apically by pads or threads of mucilage. Whole colonies of normal shape may be so joined by one or more apical pads. If the separation of the cells of the fascicule is the same as in the present form of *S. quadricauda* such compound colonies could scarcely form because the cell apices do not come into contact.

The formation of various kinds of loose syncoenobia suggests that the still unsolved question as to whether *Scenedesmus* and *Tetradesmus* should be separated can perhaps be solved by a careful examination of the process of development. Although Chodat (1926) showed that in one and the same clone both *Scenedesmus* and *Tetradesmus* colonies may arise, his further argument that this proves that the latter genus is untenable is weakened by the fact that in most of the hundred or so

described species of *Scenedesmus*, no matter what the conditions are, no *Tetradesmus* stages have been seen.

2. *Hyaloraphidium contortum* Pasch, et Korsh. in Korshikov (1931). Fig 1, I.

The cells (37-53μ l.; approx. 0·8-1·5μ br.) are undulate and colourless. In the plankton of Marton Mere, near Blackpool, England, 1956.

Species of this genus, which is believed to be a colourless parallel to *Ankistrodesmus*

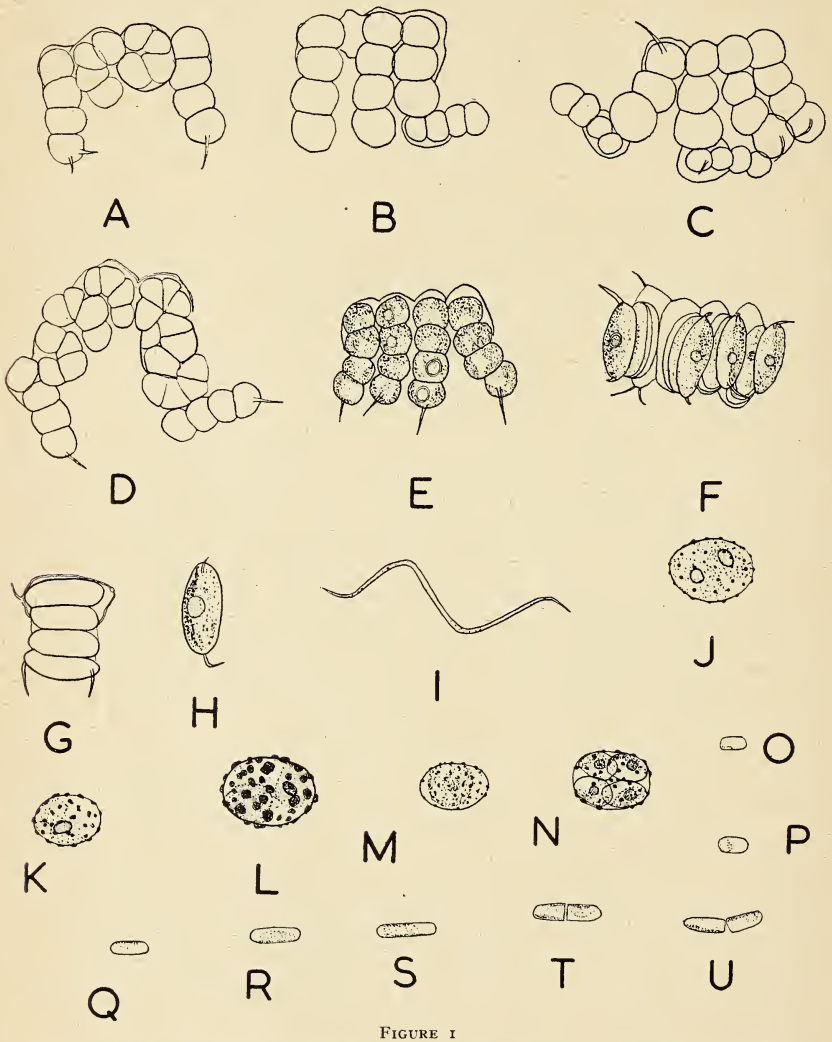

FIGURE 1

A-H Scenedesmus quadricauda (Turp.) Bréb., *A-F* syncoenobia, E and F the same individual. *I, Hyaloraphidium contortum* Pasch et Korsh. *J-N Siderocelis ornata* Fott, *N* four autospores in mother-cell. *O-U Stichococcus minutissimus* Skuja. *A-H* ×650; *I* ×950; *N* ×700, the rest ×1250.

may well be common but are very easily overlooked or mistaken for spores of fungi. They can be distinguished from the latter by the formation of autospores. Care must be taken not to confuse dead cells of *Ankistrodesmus* with *Hyaloraphidium*.

In general the former can be seen to be without living contents or to contain only remnants of the chromatophore. If *Ankistrodesmus* is infected by a parasite, such as an *Aphelidium* (Fott 1957), the cell may be colourless but contains the protoplast

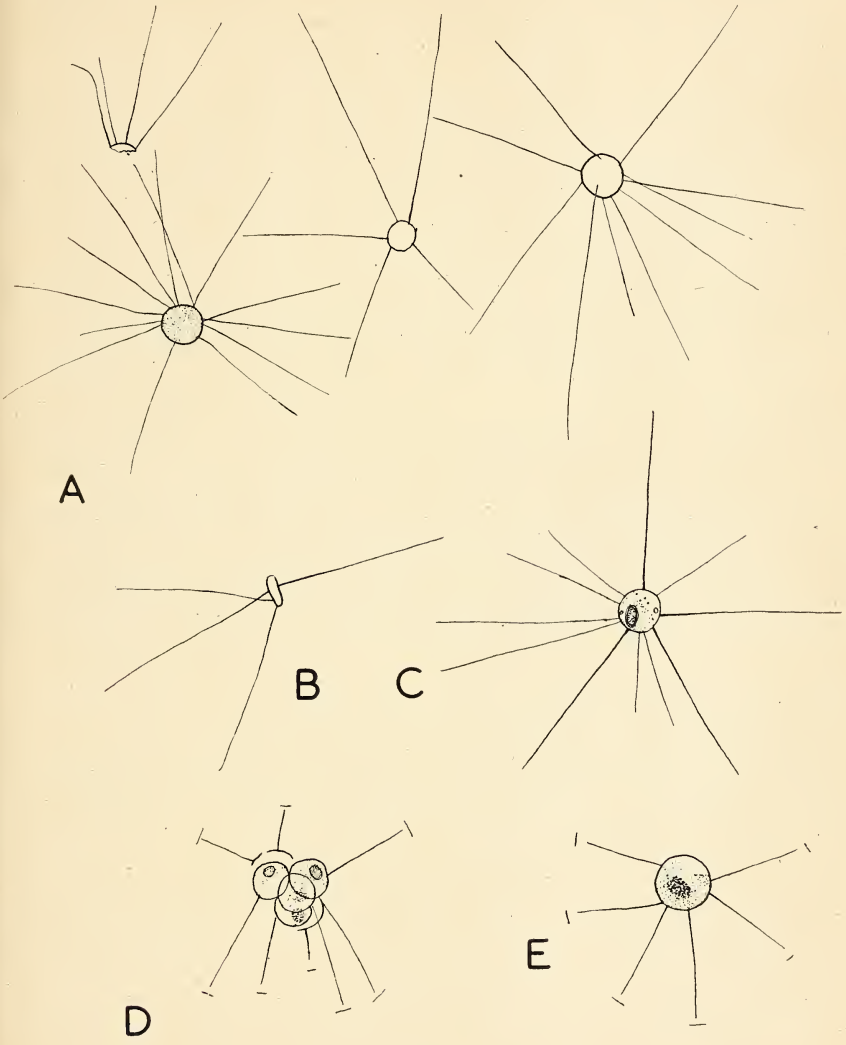

FIGURE 2

Golenkiniopsis longispina Korsh.? *A-C*, cells and fragments of walls, *C* a cell with four spines thicker than the others; *D*, autospores and *E*, adult cell, full length of spines not shown. *A-C* ×900. *D*, *E* ×1250.

of the parasite. However, almost invariably a remnant of the chromatophore is left in the form of a striking, but small, dark red or reddish-brown granular mass. Careful examination also will reveal stages in the life-history of the parasite.

This species of *Hyaloraphidium* is not known to form starch but the possibility of its presence cannot be excluded. It is often difficult or even impossible to see

starch in the narrower *Ankistrodesmus* spp., but the cells generally darken in iodine, presumably because sub-microscopic grains are present. This is one reason why so many records of *Dactylococcopsis* Hangs. are uncertain. A number of alleged finds of this genus shown to me have been members of the *Ankistrodesmus falcatus* complex.

3. *Siderocelis ornata* Fott, 1934, p. 114. Syn. *Oocystis ornata* Fott (1933). Fig. 1, J-N.

The cells (7-14μ l.; 5-11μ br.) are oval to broadly ellipsoid, surrounded by a wide mucilage sheath whose outline is only seen clearly in Indian Ink. The wall is thin and often pale to dark brown because of the more or less numerous verrucae. The verrucae vary both in shape and size, and are not arranged in a definite order. The cells have at first one chromatophore and one pyrenoid but the number of both increases as they grow. This change is related to the formation of four autospores, each with its chromatophore and pyrenoid. These may remain for a short time within the parent membrane (fig. 1, N).

This is a common but not abundant alga in many meres and pools in England, especially those which are eutrophic. Consequently it is generally distributed in the Midlands and the south and east of England but of sporadic occurrence in the north and west. I have occasionally found cells in which I could not detect a pyrenoid (fig. 1, M) but the colouration of the membrane often makes it difficult to see the internal features clearly and, as will be clear from the discussion, a pyrenoid is probably always present.

The taxonomy of this alga has been complicated by the description of other closely similar species and the doubts about the presence or absence of pyrenoids. The recorded differences in the number of chromatophores and pyrenoids are not significant as they are related to the formation of two, four or eight autospores.

In the original description no pyrenoids were recorded (Fott 1933, 1934). Bourrelly (1947, 1951) found a pyrenoid in this species and *S. minor* (Naum.) Fott. Thompson (1952) and Korshikov (1953) also recorded them. Hortobagyi's (1948, see also 1957, fig. 1) *S. Estheriana* does not seem to be separable from *S. ornata*. It too has pyrenoids (compare also *S. balatonica* Hortob. and *S. minor* (Naum.) Fott). In correspondence Professor Fott tells me that since his original description he has been able to confirm that a pyrenoid is present on *S. ornata*.

4. *Golenkiniopsis longispina* Korshikov (1953, p. 265) ?

(*Golenkinia longispina* Korsh. 1937, p. 109. Fig. 2.)

The solitary cells (3·5-8μ diam.) have up to approximately fifteen, irregular disposed, delicate spines (up to 40μ l). Not uncommonly four of the spines are thicker than the rest but not necessarily longer (fig. 2 C). The wall is thin and no mucilage is produced. There is one parietal, basin-shaped chromatophore with a pyrenoid. Four autospores are formed and liberated by the splitting of the parent membrane into two or four parts.

This alga appeared in a tank containing fish from Windermere and filled with water from a small stream at Ambleside, Westmorland, England. A few specimens of what appears to be the same alga have been seen in an old sample of plankton from Windermere, so that it is probable that the species's source in the tank of fish was also Windermere water.

Its identity with *Golenkiniopsis* is uncertain because no sexual stages were seen. Korshikov (1937) says that the number and length of the spines are variable in his species too and gives the dimensions as, cells up to 11μ diam., spines up to 65μ long.

According to Korshikov (1937, 1953) *Golenkiniopsis* differs from *Golenkinia* Chod. not only in being oogamus but also in the method of asexual reproduction. In *Golenkinia* the autospores, which Korshikov calls hemizoospores, are what many authors call aplanospores (hemiautospores according to Ettl 1956) in that they contain contractile vacuoles. Moreover they are not liberated by the splitting of the maternal membrane but by means of a hole (see Korshikov 1953, fig. 74 b). It is true that daughter cells can be liberated by the splitting of the maternal wall but then they lack spines and are perhaps ' young akinetes '. The features of the present alga are clearly those of *Golenkiniopsis* on this viewpoint.

Lagerheimia cyanae Schiller (1954, p. 240) is also identical with this alga, apart from the delicately blue chromatophore and occasional four-celled colonies. Schiller

relates the latter to vigorous development, when the number of recently liberated groups of autospores will be higher than usual. This alga is not a *Lagerheimia* Chod. (Fott 1948) because the cells have an indefinite number of spines irregularly distributed over a spherical cell. The name *Lagerheimia* is also illegitimate (Ley 1948). The blue colour, according to Schiller (1954), is an environmental modification common to a number of typically green coloured Chlorophyceae found in the margins of the Neusiedlersee, Austria.

The occasional tetrahedral colonies of *L. cyanae* suggest *Micractinium* Fres., a genus into which the British species of *Golenkinia* have been placed (West and Fritsch 1927). Sexual reproduction is known in *Micractinium* too (Korshikov 1937) and under unfavourable conditions this genus may produce solitary cells which are very difficult to distinguish from those of *Golenkiniopsis*. Even the spines may be

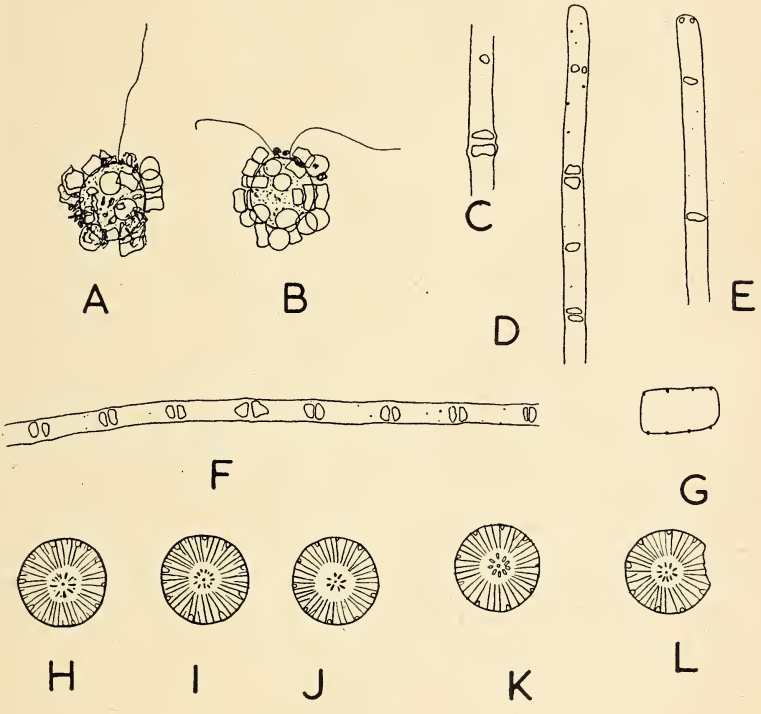

FIGURE 3

A, B, Polytoma granulifera Lack., *C-F, Oscillatoria redekei* Van Goor; *G-L, Cyclotello pseudostelligera* Hust. *A, B* ×700, the rest ×1250.

lost so that the cells are identical with those of *Chlorella* (Korshikov 1953). It seems to me that the differences between these algae justify the separation of either genera or sub-genera. In *Golenkiniopsis* (*Golenkinia* Chod. p.p.) colonial stages are rarely produced, are of short duration and consist of only one generation of cells because they are related to the rapidity of multiplication. In *Micractinium* the unicellular state, normal for *Golenkiniopsis*, is abnormal and the colonies normally produced generally consists of more than one generation of cells. As in almost all Chlorococcales the generic separation may well be a matter of convenience because the cytogenetical and phyllogenetic knowledge necessary for the erection of a natural system does not exist. *Lagerheimia cyanae* Schiller is therefore best considered, like the present alga, as probably being *Golenkiniopsis longispina*.

5. *Stichococcus minutissimus* Skuja 1956, p. 198, fig. 1, O-U.

The cylindrical cells (2-6μ l.; 1 to less than 2μ br.) are never united into filaments in nature or in liquid culture media. The parietal chromatophore lacks a pyrenoid and lines rather more or rather less than half the wall. Reproduction is solely by the formation of a transverse wall.

This is one of the common, minute planktonic alga (μ-algae) of the more productive lakes of the English Lake District though it is not so abundant in spring as species of *Chlorella* and *Coccomyxa*. It is most abundant in Blelham Tarn and Windermere. It is easily cultivated in a variety of media.

The taxonomy of *Stichococcus* is uncertain because of the few characters available for classical morphological methods of distinction. Skuja (1956) has considered the relationships of this species. Though the British specimens seem to be sometimes bigger than the Swedish ones, measurements of such small differences are more or less inaccurate with a light microscope. A large number of taxa has been described from lichens (see Raths 1938) but all seem to be larger, and their quite different mode of life sets them apart. *S. atomus* Skuja (1956 p. 197) is markedly smaller (1-1·5μ l, 0·5-0·7μ br.).

S. minutissimus comes close to Naumann's (1919) *Nannochloris bacillaris*. This is also planktonic but rather imperfectly described. Skuja (1956) considers that *N. bacillaris* is probably a different alga because its cells may be four times as long as broad and vary considerably in length and breadth judging by fig. 11 of Naumann (1919). However, Naumann's fig. 10 shows less variation and the presence of two species cannot be excluded. A second species, somewhat larger than *S. minutissimus*, is present in the English Lake District. The ' spines ' Naumann saw on cells stained in gentian violet were not seen in the British material. They are probably not rods of mucilage but bacteria, for no general production of mucilage can be detected, and no such rods of mucilage are known in this or closely related genera.

6. *Polytoma granulifera* Lackey (1939, p. 138) fig. 3. A, B.

The cells (14 by 11-12μ) are oval to globose. The contents are difficult to see because the surface is almost invariably covered by particles of silt and diatom frustules. It usually appears in small numbers during the spring maximum of *Cyclotella glomerata* Bachm. in Windermere and the covering may consist entirely of the frustules of this diatom but their arrangement is quite haphazard. On the other hand frustules of *Asterionella*, which is also very abundant at this time, are not found on it, There are two flagella about twice the length of the cell. No stigma has been seen and the number of contractile vacuoles is uncertain. Starch has not been detected.

This alga has never been seen alive. The chief difference from Lackey's (1939) description is that the flagella are about 25μ, l, not 15μ. However, Lackey's fig. 27 shows both flagella to be longer than the cells which he says are 15-20μ l. There is some doubt as to whether this alga is a *Polytoma* since several features are unclear.

7. *Cyclotella pseudostelligera* Hustedt 1939, p. 581, fig. 3, G-L.

The valves (4·5-10·5μ diam.) are almost flat, at the most weakly concentrically undulate. There are 12-14 longer marginal striae in 10μ with sometimes shorter striae here and there between the longer ones (fig. 3, H, I). In the centre is a single puncta with a ring of short striae around it. These central striae may be considerably thicker than the marginal ones and sometimes have irregularly disposed punctae and shorter striae between them (fig. 3, H). At the margin are widely separated but short markings (3-5 in 10μ) which are also visible in girdle view (fig. 3, G). They are said to be spines (see below) but I was unable to determine this.

This diatom is present in Priest's Pot, Hawkshead, Lancashire, a small pool close to Esthwaite Water into which it flows so that occasional cells may be found in the latter too. It was very abundant in the spring of 1959. It is probably of world-wide distribution but confused with *C. stelligera* Cl. et Grun. (Hustedt 1957).

The present specimens seem to differ somewhat from those described by others. Hustedt (1939, 1950, 1957) says the marginal spines form an obvious distinction from all related species, of which *C. stelligera* is the most similar. The English specimens agree with Hustedt's apart from the doubt about the structure of these marginal markings, though their distribution is the same as in Hustedt's diatom. Their

prominence in girdle view suggests that they may be spines but their shape in valve view seems peculiar.

Guermeur and Manguin (1953) have figured as this species a diatom which seems at first sight, to be strikingly different from Hustedt's or mine. The marginal stria, are unusually broad for a *Cyclotella*, stand close together and vary considerably in length. The central ring may also be composed of extremely broad striae or replaced by a ring of punctae, or even be absent. However, this diatom has the widely spaced marginal spines and in the text they say ' zone marginale, délicatement striée radialment, 14-22 stries en 10μ.' Manguin's (1954) *diminuta* (valves 1·5-5·5μ br.) differs in the imperfectly developed central area. Here again the marginal striae are depicted as far thicker than in Hustedt's (1939, 1950) and my specimens. The value of 1·5μ for the diameter of the valve is perhaps a misprint.

8. *Oscillatoria redekei* Van Goor 1918, p. 259. Fig. 3, C-F.

The filaments (approx. 2μ br.) of this alga are so striking that there are few species with which it can be confused. Seen under the microscope they are colourless or at the most faintly yellowish. While it is said that in quantity they produce a yellowish-green colour (Wundsch in Huber-Pestalozzi 1938, p. 236) this is no proof that they contain either chlorophyll or other pigments characteristic of the blue-green algae. Both Huber-Pestalozzi (1938) and Skuja (1956) speak of a pale blue or blue-green colour, though the latter says ' vielleicht nur schwach blaulich ' and this may be ' eine optische Erscheinung '. In the British material I have not been able to convince myself that they are this colour. The alga may, therefore, be colourless. At each end of the cell there is usually a single large gas-vacuole. As the rest of the protoplasm is usually very homogeneous, the contrast between this and the highly refractive gas-vacuoles is very striking. The transverse walls are usually invisible, their position being marked by the pairs of gas-vacuoles. The filaments are sometimes slightly constricted at the cross-walls. When the gas-vacuoles are especially large the filament may be inflated at this point with a narrow constricted area in the centre of this inflation (fig. 3. C). The apex of the filament is neither narrowed nor thickened. Occasionally the gas-vacuoles are absent, or small, or few in number (e.g. fig. 3, D). They are of varied shape but scarcely ever globose. The cells are three or more times as long as broad.

O. redekei is present in several lakes, meres and reservoirs in the south and east of England. It favours highly eutrophic waters and is nearly always accompanied by *O. agardhii* Gom. According to Wundsch (in Huber-Pestalozzi 1938) it is an indicator organism for the presence of free hydrogen sulphide, According to the degree of development of the gas-vacuoles it may be found massed near the surface or on the mud. Concerning its possible identity with *O. planktonica* Wolosz. see Skuja (1956).

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NOTES ON THE LABOULBENIALES[1]

W. D. HINCKS

The order Laboulbeniales consists of minute fungi varying in length from about 0·1 mm. to 3 mm., which develop on the superficial integument of various insects and a few other Arthropods. The fungi penetrate only the outer layers of the integument of the living host and at least in the vast majority of instances appear to behave as true parasites and not seriously to affect their hosts. The order has been placed in the Pyrenomycetes but its position is debatable and appears to be more isolated.

The structure is simple, the ' body ' of the fungus consisting of a column of relatively few, large, thick-walled cells, commencing with a single basal cell, the foot or haustorium, and becoming several cells wide at the top of the column where the female organs may be developed. More or less lateral appendages are often present which carry and may conceal the male organs when these are present on the same plant, some species of Laboulbeniales being monoecious and others dioecious. The colour of these fungi is more or less fuscous, with the foot at least, always black; sometimes they are more extensively or even entirely black. The antheridia are usŭally flask-shaped and the male gametes are either produced exogenously or extruded from an aperture in the antheridium. Their transference in a film of moisture to the female organ, is facilitated by movements of the insect host, and fertilisation of the oogone or basal part of the female organ is effected by a downward migration of the nucleus from the terminal receptive trichogyne. After fertilisation the oogone divides to produce four or eight spores contained in an ascus inside the female organ which is usually termed a ' perithecium '. Dissolution of the ascus wall leaves the spores free inside the perithecial cavity from which they escape by a terminal aperture.

It has always been assumed that the adhesive spores are passed from one insect host to another when they come into contact during mating, etc. This indeed may be the case in some species but recent work by Lindroth (1948) indicates that it is not always so. Working with a species of *Laboulbenia* infesting ground beetles of the genus *Ophonus*, he made the following points as a result of his experiments:

(1) That the fungus attacked only certain closely related species and did not attack other ground beetles kept with them.
(2) Infection takes place in the adult stage and incubation takes up to three weeks.
(3) Infection is by means of spores contained in the soil and not, or only to a very minor extent, by immediate contact.
(4) Viability of the spores in the soil does not appear to exceed a few weeks.

If this is true of all Laboulbeniales it is clear that they can only attack hosts which have more or less overlapping generations of adults.

Hosts.

With the exception of a few Myriapods (millipedes) and a number of Acarina (mites) the hosts of Laboulbeniales are insects and by far the greatest number of species are associated with the order Coleoptera or beetles. The vast majority of the beetle hosts are provided by the two families Carabidae (ground beetles) and Staphylinidae (cocktail or rove beetles), but a number of other families are also attacked to a minor degree. The following alphabetical list includes the majority of the beetle families involved:

Anthicidae, Byrrhidae, Carabidae, Cerambycidae, Chrysomelidae, Ciidae, Cleridae, Coccinellidae, Colydiidae, Corylophidae, Cryptophagidae, Cucujidae, Dryopidae, Dytiscidae, Elateridae, Endomychidae, Erotylidae, Gyrinidae, Haliplidae, Histeridae, Hydrophilidae, Lathridiidae, Mycetophagidae, Nitidulidae, Passalidae, Phalacridae, Pselaphidae, Ptiliidae, Scaphidiidae, Scarabaeidae Scydmaenidae, Silphidae, Staphylinidae, Tenebrionidae.

In addition to the Coleoptera several other orders are known to provide hosts for Laboulbeniales. Among the Orthopteroid orders a number of Dermaptera (earwigs) and Blattodea (cockroaches) serve as hosts, and in the Orthoptera, the Gryllidae (crickets) and Gryllotalpidae (mole crickets) are sometimes attacked. Several species of bird lice (Mallophaga) and at least one termite (Isoptera) are known to be

[1] Based on a Chairman's Address presented to the Mycological Section at Thornton-le-Dale, on Sept. 12th, 1959.

hosts of Laboulbeniales. Of the Hemiptera the aquatic families Corixidae a: Veliidae provide most of the records though other families such as the Lygaeidae also include host species. In the order Diptera (flies) several families are record as fulfilling the rôle of hosts. These include Agromyzidae, Calliphoridae, Chloropida Diopsidae, Drosophilidae, Empididae, Ephydridae, Helomyzidae, Muscida Nycteribiidae, Ortalidae, Sapromyzidae, Sphaeroceridae, Streblidae, Trypetida Finally in the Hymenoptera several species of ants (Formicoidea) are known t serve as hosts for fungi of this order. The majority of the host records apply to epigeal species or those inhabiting damp places or even aquatic habitats. Very, few aerial, leaf-feeding or floricolous species are attacked.

In most cases the fungi may be attached to their hosts almost anywhere on their bodies or appendages but there is a natural tendency for them to occur in situations offering some protection, such as the depressed areas of the pronotum or sides of the elytra of Carabids, or amongst the bristles of the elytra and exposed abdominal tergites of Staphylinids. On the other hand there are instances where the fungus appears to be attached to the host always in the same spot and some of the examples reported by Thaxter are very remarkable. Instances of this occur in the genus *Chitinomyces* Thaxter, species of which attack water beetles of the genera *Haliplus* and *Laccophilus*. Thaxter tells us that the exact situation of any given species on its host is invariable and corresponds very exactly in different host individuals even when these are different species inhabiting widely separated regions. Several species of this genus may occur on a single host but their points of attachment are so specific that the precise situation, even to the distance from the edge of the elytron, etc., enables them to be identified correctly without microscopic examination. Perhaps the most remarkable instance occurs in this genus and relates to sixteen quite distinct species, all of which occur on the apical body segment and adjacent genital lobes of a Gyrinid beetle, each species being confined to a definite position in this very restricted area.

Collecting.

Undoubtedly the simplest way to secure specimens of this order is to have access to well preserved Museum collections of their hosts. Much of the extensive material studied by Thaxter was obtained in this way. The utility of such accumulations of host materials of British insects is illustrated by *Dimeromyces corynetis* which Thaxter (1924) stated was known only from La Plata, Argentina and Honolulu, on the cosmopolitan beetle *Necrobia ruficollis* (F.). Having read this statement almost the first specimen which I examined in the extensive British series of this species in the Manchester Museum revealed a few plants of the fungus, an addition to the British list (see below). The only problem involved in work of this kind is finding sufficient time to examine the hosts thoroughly.

In the field the collection of Laboulbeniales offers problems to any but entomologists, and doubtless these difficulties account for the complete neglect of the order by British mycologists. It is essential to have some knowledge of the hosts and their habitats to be successful in the field and even then much depends on the local conditions. One may examine hundreds of a particular host in one locality without finding a single fungus yet a few specimens of the same species from a similar habitat but in a different locality may be nearly all infested. At Spurn on one occasion, in a heap of decaying haulms of some kind of legume, there were many beetles of the genus *Philonthus*, most of which were heavily parasitised by *Rhacomyces philonthinus* Thaxter. Unfortunately only a few specimens were collected at the time and so far I have not been able to find an exact duplicate of these favourable conditions. The necessary physical conditions seem to be damp and heat, and heaps of decaying vegetable matter in marshy places are the most productive of infected hosts. Unfortunately these conditions do not guarantee success. An examination of a large number of beetles collected at Askham Bog under such conditions failed to yield a single fungus yet at the same time of the year and in the same locality Mr. J. Armitage and Miss J. Parker collected some moles nest beetles, one species of which, *Quedius othiniensis*, later proved to be heavily infested by *Symplectromyces vulgaris* Thaxter, which incidentally, is a new host record for this species. Evidently the uniform, relatively high temperature conditions of the nests were more suitable for the development of Laboulbeniales than those of the heaps which I examined. On the other hand *Quedius longicornis*, which was equally plentiful in the same nests was entirely free from attack.

In general Laboulbeniales should be searched for on insects in damp places, damp vegetable debris, grass cuttings, haystack refuse, damp decaying wood, decaying fungi, under stones and debris on stream and pond sides, and on aquatic insects. The host insects may be killed in the usual entomological killing bottle and should then be examined carefully under a binocular microscope. Care should be taken to retain the hosts as well as any fungi since the proper identification of the former is a necessary preliminary to the identification of the latter.

Mounting.

I have little experience on this subject and have used only one method for all the material examined whether old or recently collected. Specimens located with the aid of a binocular are carefully removed with a moistened needle point, taking care to detach the plant at its foot. The plant is transferred direct, without treatment of any kind, to a slide on which is placed a drop of one of the Gum Chloral mountants well known to entomologists for mounting small whole insects. The mountant is then covered and after labelling the slide is set aside in a warm place to harden. The mountant appears to do all that is necessary by way of expanding shrivelled parts and clearing, and as far as my limited experience goes appears to provide optically satisfactory results. Slides made from older material may contain fragments of debris or dried secretion so perhaps it would be best first to soak the plant in an aqueous medium of some kind such as plain water or water slightly acidulated with acetic or lactic acid, before mounting in Gum Chloral.

British Species.

The genus *Laboulbenia* was described by Montagne and Robin in 1853 and named after Alexandre Laboulbène, an entomologist and Professor of Medicine in Paris (3/8/1825-10/12/1898) who first discovered these small fungi on a bombardier beetle (*Brachinus*). Rouget also, about the same time, had found the same fungus so his name was associated with Laboulbène's in that of the first described species, *Laboulbenia rougetii* Mont. et Robin. For some decades knowledge developed slowly and consisted largely of the description of a few new species. It was not until the first paper in 1890 of Roland Thaxter, a great American mycologist, that the tempo increased. The contributions of Thaxter dwarf into complete insignificance all other work on the order and from 1896 to 1931 he produced in five parts a large work entitled *Contribution towards a Monograph of the Laboulbeniaceae*, comprising 1,197 pages and 166 beautiful and accurate plates.

The first British species were not recorded until 1908 when, in his second volume, Thaxter included some British material as a result of an examination of Coleoptera in the British Museum (Nat. Hist.). In 1924 Hake published a list of 26 British species based on slides presented by Thaxter to the British Museum. In 1940 Bisby and Mason included a brief list of 40 British species extracted from Thaxter's Monograph. Two years later (1942a) Donisthorpe published a list of British insects recorded as infested by Laboulbeniales. He included Hake's records and those of Bisby and Mason (*ex* Thaxter) and added three others. Donisthorpe stated ' in my experience, however, infected individuals are extremely rare.' My own experience coincides more nearly with that of Thaxter who wrote that from 5 to 50 per cent. of the hosts may be infected. Some species, such as *Rhacomyces philonthinus*, are certainly very common indeed. The real difficulty seems to lie in giving sufficient time to a thorough examination of the hosts.

It may be useful to supplement these three main British publications (Hake, Bisby and Mason, Donisthorpe), scanty though they are, with such additional records as I have been able to discover in the literature, though my search has been by no means thorough, together with my own observations. The last, I am afraid, are based on only a little work during the past year but include two species new to Britain, a number of new host records, and some new locality records, and are designed only as a first contribution to an increase in our knowledge of these interesting fungi.

In the following notes species marked † are not included in previous British lists. Insect names marked * appear to be new host records for their respective fungi. I am responsible for the identifications of fungi and hosts unless otherwise indicated. Records followed by ' M.M. ' indicate that the material studied is in the Manchester Museum.

Suborder Laboulbenineae

Family Peyritschiellaceae

Dichomyces vulgatus Thaxter, 1900.

Oxon. Wychwood Forest, 19/10/1952, on **Philonthus politus* L. (Col., Staph.) (*R. W. Lloyd*) (M.M.).

A record of this species on *P. longicornis* Steph. (=*scybalarius* Nord.) from Scotland (Thaxter, 1908) appears to have been overlooked by previous authors.

[*Monoicomyces homalotae* Thaxter, 1900.]

This species should be deleted from the British list as its host, *Atheta dilutipennis* Motschulsky (*Homalota putrescens* Wollaston) is an Oriental species. It was recorded as British by Thaxter, doubtless in error, and was included by previous authors.

†*Rickia* sp.

Donisthorpe (1942c) mentions a *Rickia* sp. as being associated with ants in Britain but unfortunately the species was not identified.

Family Dimorphomycetaceae

†*Dimeromyces corynetis* Thaxter, 1912.

In 1924 Thaxter stated that this species was known only from La Plata, Argentina and Honolulu, Hawaii, on the elytron of *Necrobia* [*Corynetes*] *ruficollis* (F.) (Col., Cleridae). The host is cosmopolitan, occurring commonly in Britain.

Essex, Ongar, 5/1905 (*W. Bevins*) (H. Britten Coll.) (M.M.).

Family Laboulbeniaceae

(Laboulbeniaceae Homothallicae of Thaxter and Colla).

†*Stigmatomyces entomophilus* (Peck, 1885) Thaxter, 1890.

First recorded as British by Blair (1947) from the Isle of Wight on the fly *Drosophila funebris* (F.) (Dipt., Drosophilidae).

Symplectromyces vulgaris (Thaxter, 1900) Thaxter, 1908.

Yorks. Askham Bog (64) in some numbers on **Quedius othiniensis* Joh., in moles nests, 19/2/59, 19/4/59 (*J. Parker* and *J. Armitage*) (M.M.). Individuals of *Q. longicornis* Kraatz, taken from the same nests were free from attack.

Corethromyces Thaxter, 1892 (*Rhadinomyces* Thaxter, 1893).

It has been overlooked by British authors that Thaxter (1934) combined these two generic names because the greatly increased number of species rendered generic separation impossible. Our British species must therefore be known under the earlier name.

†*C. cristatus* (Thaxter, 1893) Thaxter, 1934.

This appears to have been overlooked by British authors. A form of the species was recorded by Thaxter (1934) as occurring on *Lathrobium terminatum* Gravenhorst (Col., Staph.) from Eltham and *L. brunnipes* (F.) (?) from Thornhill in Scotland. *C. lathrobii* (Thaxter, 1893) Thaxter, 1934, may also prove to be a British species as it is recorded by Thaxter (1934) from *L. quadratum* (Paykull), a common British species, from the Hope Dept. at Oxford, without mention of a locality.

C. pallidus (Thaxter, 1893) Thaxter, 1934.

Ches. Cotterill Clough, 20/4/1948, on *Lathrobium brunnipes* (F.) (*H. Britten*) (M.M.).

Rhacomyces philonthinus Thaxter, 1900.

Yorks. Leeds, Lime Hills (64), 31/3/1946, on *Philonthus varians* (Paykull) (Col., Staph.) (*W. D. Hincks*) (M.M.). Keighley, Holmehouse Wood (63), 11/4/1942, on *P. concinnus* (Gravenhorst) (*J. Wood*) (M.M.). Spurn (61), Marsh Meadow, 2/7/1948, in cow dung, on *P. varians* (*W. O. Steel*) (det. E. M. Rosser) (M.M.) (see Shaw, 1952).

Lancs. Withington, garden compost heap on *P. varians*, 20/6/1951 (*S. Shaw*) (det. E. M. Rosser) (M.M.) (see Shaw, 1952).

Ches. Wilmslow, 4/4/1943, on *P. fimetarius* (Gravenhorst) (*W. D. Hincks*) (M.M.). Dunham Park, 27/10/1958, on *P. varians* (*W. D. Hincks*) (M.M.). Cotterill Clough, 16/11/1943, on *P. varians* (*H. Britten*) (det. T. Petch) (see Shaw, 1952).

Derby. Goyt Valley, 16/4/1948, on *P. varians* (*W. D. Hincks*) (M.M.).

Hereford. Treago, 24/9/1945, in fungus on *P. fimetarius* (*R. W. Lloyd*) (M.M.).

DEVON. Slapton Ley, 20/4/1958, on *P. varians* (*W. D. Hincks*).
In my experience this is by far the commonest British species.

Compsomyces lestevae Thaxter, 1900.
YORKS. Keighley, Holmehouse Wood (63), 11/4/1942, on *Lesteva fontinalis* Kiesenwetter (*J. Wood*) (host det. by W. O. Steel) (M.M.).

Laboulbenia nebriae Peyritsch, 1871.
This species appears in all British lists as from ' Whallen ' on *Nebria gyllenhali* (Schoenherr), as recorded by Thaxter (1908). The host is a northern species and surely the locality quoted is a misprint for Whalley, Lancs., where the host is common.

L. subterranea Thaxter, 1893.
In 1896 Thaxter recorded this species from cavernicolous Carabids of the genus *Anophthalmus* from the Old and New Worlds. In 1908 he added further records on *Anophthalmus* spp. and *Trechus* spp. from Europe. He also recorded British specimens on hosts of the Staphylinid genus *Stilicus* which he was unable to separate from the Carabid species. Hake (1924) recorded this British material as *L. stilici* Thaxter, 1908, although as far as I know Thaxter did not publish this name. Probably Hake took the name from a slide in the British Museum so labelled by Thaxter in the period of indecision as to its status. Colla (1934) placed *L. stilicola* Spegazzini, 1914, as a possible synonym of *L. subterranea*.
I have examined a few rather poor specimens which I think belong to the Carabid form of *L. subterranea*. These are from OXON., Water Eaton, 11/4/1920, on *Trichoblemnus micros* (Herbst) (*J. Collins*) (M.M.).

L. pedicillata Thaxter, 1892.
Recorded by Green (1954) from Carmarthenshire on **Bembidion laterale* (Samouelle) (Col., Carab.).

L. rougetii Montagne et Robin, 1853.
Plentiful on *Brachinus crepitans* (L.) (Col., Carab.) from HANTS., Southsea, collected in 1863 ! (M.M.).

L. gyrinidarum Thaxter, 1892.
CHES. Rostherne, 21/7/1921, on **Gyrinus natator* (L.) (Col., Gyrinidae) (*H. Britten*) (M.M.).

L. vulgaris Peyritsch, 1871.
YORKS. Spurn (61), Walker Butts Bank Dyke, 6/6/1950, on *Bembidion aeneum* Germar (Col., Carab.) (*S. Shaw*) (det. E. M. Rosser) (M.M.) (see Shaw, 1952). CHES. Bollin Valley, 21/5/1952 (*S. Shaw*) (det. E. M. Rosser), on same host, probably this species. (See Shaw, 1952).

†*Laboulbenia* sp. prox. *ophoni* Thaxter, 1899.
This species is closely related to Thaxter's species but is not conspecific. It is recorded from Sweden by Lindroth (1948) who also included two British records: Cambridge, 26/6/1920 (*E. C. Bedwell*) on *Ophonus cordatus* (Duftschmidt) and CORNWALL, The Lizard, 9/1922 (*J. H. Keys*) on *O. puncticeps* Stephens (=*angusticollis* Mueller) (Col., Carab.).

†*Laboulbenia* sp.
ISLE OF WIGHT. River Medina, 27/9/1935, in flood refuse on *Dicheirotrichus gustavii* Crotch (Col., Carab.) (*J. Taylor*, coll. R. W. Lloyd) (M.M.).
I have examined a few examples from a single specimen of the host. Colla (1934) records *L. giardi* Cèpède and Picard, 1903, from this host in Italy but my rather poor material does not quite agree with her description and would better fit *L. anisodactyli* Spegazzini, 1914, also found in Italy but on *Anisodactylus* spp. It will be best to await more British material of this species before attempting to settle its identity finally as *Laboulbenia* is a very critical genus. It appears to represent a new British species.

SUBORDER CERATOMYCETINEAE

Family Zodiomycetaceae

Helodiomyces elegans Picard, 1913.
LANCS. Ainsdale, 16–17/5/1959, in clusters on abdomen and elytra of *Dryops luridus* Erichson (Col., Dryopidae) (*W. D. Hincks*) (M.M.).

By way of postscript I wish to refer to a species which has not yet occurred in Britain though its host is a British species. By a misunderstanding of the name of

the host this species has been given a nonsense name by Thaxter which should be amended as below.

DIMORPHOMYCES PHLOEOPORAE Thaxter, 1900, EMEND. NOV.

Dimorphomyces thleoporae Thaxter, 1900, *Proc. Amer. Acad. Arts and Sci.*, **35**: 410 (Madeira, Santa Anna, on *Phloeopora* (err. *Thleopora!*) *corticalis* (Gravenhorst), Col., Staph.); 1908, *Mem. Amer. Acad. Arts and Sci.*, **13**: 241, pl. 28, ff. 12-13; 1924, *loc. cit.* **14**: 323.

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—— (1931). Ditto V. *Op. cit.* **16**: 1-435, pls. 1-60.

FAIRBURN INGS NATURE RESERVE

At the Y.N.U. Vertebrate Section meeting in Leeds in March, I found it necessary to ask members to exercise a little more discretion about searching for rarities and in ringing young birds on the Nature Reserve at Fairburn, Newton and Ledston Ings. I shall be glad if I may appeal through *The Naturalist* to other members who were not at the meeting.

The Wardens, several of whom are ringers, have mutually agreed to refrain from ringing colonial nesting Black-headed Gulls etc., because of the danger of disturbance to other rarer species. It is also easier to convince local people of the necessity to avoid disturbing nesting birds if we ourselves are not disturbing them. We are particularly anxious that visitors to the Reserve discipline themselves and do not go searching for the ' unusual '. With each permit there is a request that people keep to the footpaths.

At the same time I would also like to ask for the co-operation of members who visit the area, in two projects. We are hoping to find out something about the movements to and from the area of Mute Swans and accurate counts of this species, both on the Reserve and on other waters will be helpful. This information is being collected by D. J. R. Potter.

Series of counts are also desirable during the summer months of *all* broods of coots, ducks and grebes. I shall be glad if members will let me know (or C. Winn, Esq., 7 Henson Grove, Airedale, Castleford), the total number of broods of each species seen *on as many dates as possible*, and the number of young in each brood.

R. F. DICKENS.

NOTES ON WADER MOVEMENTS IN YORKSHIRE

J. K. FENTON AND A. H. B. LEE

THE object of these notes is to place on record a summary of certain wader (*Limicolae*) movements observed in the West Riding in recent autumns.

So many factors, both natural and human, influence the actual records that the year 1956 is taken as a basis for the graphs owing to its comparatively full coverage and the abundance of certain species. Much work was done on previous years' records on a local and county basis and included many more species than the four here examined. The numerous records could not be expected to give full day-by-day coverage due to the inability of observers to cover each area sufficiently. Thus the influence of primarily week-end observations cannot be removed, and the interpretations of the records are, therefore, influenced by this fact. No attempt has been made to average or disguise this effect.

Whilst these interpretations cannot be other than hazardous, it is hoped that they may encourage further work on a problem which has received little attention.

S - Swillington Ings.
F - Fairburn/Brotherton Ings.
W - Wath Ings.
D - Denaby Ings.

To this end more regular mid-week visits to appropriate areas can be a great help. The lack of continuity in the records prevented any concise summary, and it was arranged that the present study should be restricted to four selected common species from a more limited area, and for the autumn months only.

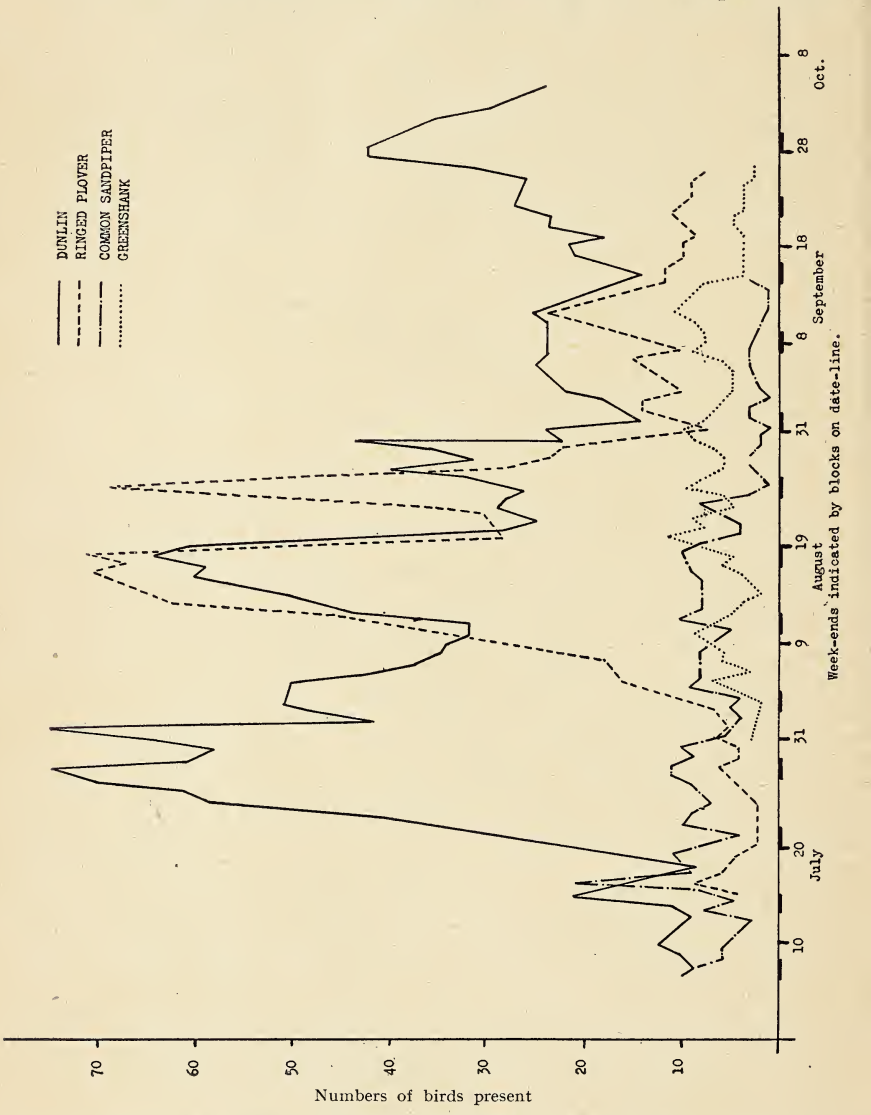
The records on which this paper is based come from members of the Yorkshire Naturalists' Union, the Leeds and District Bird Watchers' Club, and the Doncaster and District Ornithological Society. The principal localities covered were Fairburn-Brotherton Ings and Swillington Ings; Denaby Ings and Wath Ings. Thus, what might be termed the 'Aire-Calder ' and ' Don-Dearne ' areas were examined.

The graphs were constructed by plotting the total of each day's 'Aire-Calder '

and ' Don-Dearne ' areas records. As each day was not covered in each area, there is obviously a risk of short-term fluctuations being brought in on this account.

Ringed Plover (*Charadrius hiaticula*).

In each year examined (1952-56) there were indications of a single peak between



the middle and end of August. The numbers involved varied greatly and, in 1956, appeared larger than normal. The spread of records was such that a graph for that year gives a reasonable indication of the variations in the numbers present though the influence of week-end watching was not entirely absent. The break in the principal peak is probably due to this factor as the two points are too close together to enable any other interpretation to be made. In this year there was some sugges-

tion of a second passage in the second week of September but this could not be traced in the earlier years.

This graph coincides quite well with the findings at Cambridge (Nisbet, 1957) where more continuous observations were possible. The examination of almost daily records from this sewage farm for the years 1950-55 showed a small secondary peak.

Common Sandpiper (*Tringa hypoleucos*).

Though the 1956 records show little other than a small peak in mid-July, an examination of 'Aire-Calder' records from 1952 onwards shows this to be followed in most years by a second wave towards the end of August.

One peak only was disclosed by the Cambridge enquiry. It seems possible that the double passage in the West Riding may be due to the influence of local breeding birds. Only small numbers appear to be in the area after the end of August.

Greenshank (*Tringa nebularia*).

Here again the 1956 figures show virtually no main passage period. However, earlier years indicate, with some certainty, that passage is usually concentrated into four weeks from mid-August to mid-September.

The influence of Scottish breeding birds is not known, but these may move down the Pennines, as suggested by Chislett (1953), whereas continental birds may travel through to the west *via* the Aire gap. In 1955 this species was very numerous in the area and the peak coincided with that of Green Sandpiper (*Tringa ochropus*) in the last ten days of August. This suggests that the Greenshank involved in this movement were mainly immigrants, not Scottish birds. In 1956 numbers rose slightly for the same period but increased again in mid-September.

Cambridge disclosed one major peak with a small earlier passage suggested.

Dunlin (*Calidris alpina*).

In each year examined this species showed at least two main peaks and in 1953, 1955 and 1956 a secondary could be traced after the first main passage. This was well-marked in 1956 as can be seen from the graph.

Though the local situation could be affected by the proximity of the Pennine breeding areas, this same triple passage trend was shown by the Cambridge figures. Nisbet suggested that this could be caused by the overlapping of two double-passage races; the last peak of the first race coinciding with the first peak of the second. Here again it is difficult to assess the influence of British breeding birds whose young could migrate at a time slightly different from the adults. Cambridge observations indicated that adults formed the first wave of the double-peak species with the young birds following later. More work could be done locally on this possible factor.

The period of passage of this species is more protracted than the others considered, starting in mid-July and continuing into October, thus tending to support Nisbet's suggestion that different populations are involved.

A number of analogies have been made with Nisbet's conclusions, but whereas he had frequent, for some periods daily, observations over a number of years from which to work, the present study has been restricted in this respect.

Whilst it would be unwise to draw any firm conclusions from the local summaries, there are certain features of interest which can probably be developed in any future enquiries.

The differences in the passage frequencies present an intriguing problem. The following is a summary of influences which may operate independently or in conjunction:

(i) The possibility (suggested by Cambridge observations) that adult and young birds may migrate at different times, the former apparently preceding the latter.
(ii) The different peaks could be caused by variations in the lengths of breeding seasons at different latitudes.
(iii) The relative success of the various breeding seasons in Britain and Northern Europe could influence the number of young birds moving from each area.
(iv) Local records could be influenced by any variations in the routes taken by the different breeding populations.

(v) Weather conditions over Northern Europe could affect the numbers of Scandinavian birds arriving in this country.
This could take two forms:
(a) Direct: the actual influence on flying birds.
(b) Indirect: Rainfall could affect the availability of food. A comparison of rainfall figures in the Leeds area with the numbers of birds present in the 'Aire-Calder' zone did not however show any correlation.

Some of these factors may influence the numbers of each species passing in different years. From the 1956 records it is clear, for example, that a 'good' Dunlin year does not necessarily coincide with a strong Greenshank passage.

In 1956 many waders were attracted to the recently-drained Brotherton Ing, near Castleford, and this additional feeding area probably accounted for the above average numbers present. Such important topographical changes must be expected and, if only of a temporary nature as is often the case in opencast mining, it may be difficult to make due allowance in any assessment of year-to-year fluctuations.

It has been mentioned earlier in this paper that much work had been done in collating other 1956 records and also those of previous years. Because of lack of continuity of observations no conclusions could be drawn from the data obtained. The original object in collecting the information was to attempt to confirm Chislett's (1940 and sub.) suggestion that there was a connection between peak and other occurences of waders on the coast and Humberside, and those at such inland haunts as the 'Aire-Calder' and 'Don-Dearne' areas. Lack of continuous observations defeated this although the data obtained did suggest that Chislett was correct, and that also there may be a connection between arrivals at the Tees and Humber estuaries and also southward coastal passage. Another possibility is that the records of the rarer species inland may be indicative of the population from which the more common species are derived; e.g. the arrival dates of Spotted Redshank (*Tringa erythropus*), Little Stint (*Calidris minuta*), Temminck's Stint (*Calidris temminckii*) or Curlew Sandpiper (*C. testacea*) would possibly coincide with arrivals from Scandinavian breeding areas.

Though incomplete in itself, this examination of some West Riding wader movements discloses some interesting factors which should repay more detailed investigation in the future but it must be emphasised that only by more continuous observations at more localities can the suggestions put forward be proved.

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Let the Forest Judge, by **F. Hamilton.** Pp. 240. Privately printed at the Curwen Press, London, 10/6.

The press which issues this work refers to the author as Miss F. Hamilton, but all the evidence in the book that has bearing leads me to think that this is an error of gender. The book itself comprises a series of essays, almost all with an objective basis, such as 'Deer', 'Protective Resemblance' or 'Autumn', but which all depart quickly into the realms of subjective argument, metaphysics and, I think I must call it, crypto-Christianity. That the beatitude concerning the meek can be illustrated by a swan which retreats before the ice to the diminishing area of open water to survive is indeed a thought and the majority of organisms which have survived through the geological ages are certainly noteworthy for being uncommitted. It is only possible to be truly meek, however, in the presence of the dominant party.

With much of the author's tale I can bear with comfort, more of it with an effort, but when I am invoked to 'Embrace the Now: this is an apotheosis indeed for, so swiftly she passes, you needs must be carried off your foothold upon created thing (the experience, remember of life) if you do as I here say', I put the book quietly down and take up a crossword for I know I can solve that if I keep at it.

A.H.

SUCCESSFUL REARING OF A TREE SPARROW BY A BLUE TIT

J. B. HAGUE

DURING 1959 whilst making a study of twenty-one nest boxes which were situated in a private wood, the following happenings were recorded in nest-box number eighteen on frequent visits during the nesting season.

On the 26th April a nearly completed nest of a Tree Sparrow (*Passer montanus montanus*) was found in the nest-box: it consisted of an untidy mass of dry grass which covered the box bottom to a depth of about one inch. The actual nest depression, being situated in the centre of the box bottom, was well lined with feathers and a fair amount of loose nesting materials was present. When visited on the 30th April the nest was found to be completed and on the 4th May was found to contain three Tree Sparrow eggs. On the 5th May the nest contained four Tree Sparrow eggs, the adult bird leaving the box at our approach. The situation was the same on the 8th May but it was noticed that the nesting material had settled down, no doubt due to the movements of the adult birds.

The box was next visited on the 14th May when a complete change was found to have taken place. A new nest was found in the back right hand corner of the nest-box and there was evidence that more nesting material in the form of dry grass had been added, the depth of material on the box bottom having increased. All signs of the first nest were gone, but I had my suspicions that it was buried under the new material. The new nest contained three eggs of the Blue Tit (*Parus caeruleus*) and one Tree Sparrow egg. The adult Blue Tit was seen to leave the box at our approach. On the 26th May the nest contained five Blue Tit eggs and one newly hatched Tree Sparrow egg. The adult Blue Tit was observed in the vicinity of the nest-box. When visited on the 28th May the nest was found to contain the young Tree Sparrow which dwarfed three newly hatched Blue Tits. Two unhatched eggs were present. Examination on the 31st May showed no change, but colour photographs were taken. On the 7th June the adult Blue Tit was observed taking food into the nest-box, and as the nest was examined it persistently scolded from nearby. The newly-hatched Blue Tits were missing, but the two unhatched eggs were present alongside a very active young Tree Sparrow. The nest was examined without disturbing its structure and the ground in the immediate vicinity of the nest-box was minutely searched but no sign of the three missing Blue Tits could be found. The Tree Sparrow was ringed, ring number K.53699.

On the 10th June the Tree Sparrow had deserted the nest, leaving behind the unhatched Blue Tit eggs. On the 11th June the box was still in the same condition and it was decided to take the nest apart. The original Tree Sparrow's nest was found under about half an inch depth of nest material and it still contained three Tree Sparrow eggs. The Blue Tit's nest at one place was found to be in very close proximity to that of the Tree Sparrow, the two begin separated by only a thin wall of nest material.

Conclusion: It would seem, from the above observations, that the nesting Tree Sparrow was driven out by the Blue Tit, which buried the existing nest with its own nest material. The depression made by the Blue Tit in forming its own nest was in close proximity to the buried nest due to the confined space in the nest-box. It would, therefore, be quite easy for one or more of the eggs in the Tree Sparrow's nest to work through the thin wall of nest naterial due to the movements of the adult Blue Tit. The Tree Sparrow's egg probably hatched in advance of the Blue Tit's eggs due to the incubation already carried out by the adult Tree Sparrow before the nest was buried. The newly hatched Blue Tits could have died of starvation due to the more advanced young Tree Sparrow commandeering the majority of the food brought by the adult Blue Tits and were probably removed by the adult Blue Tits as a nest sanitation measure.

The reverse of the above almost occurred in nest-box number seven. A near-completed nest which had every appearance of being that of a Tree Sparrow was found to contain one Blue Tit's egg on the 30th April. On the 5th May the nest contained three Tree Sparrow eggs and one Blue Tit egg. When examined on the 20th May two newly hatched Tree Sparrows were found with one Blue Tit's and one Tree Sparrow's egg unhatched. These two young Tree Sparrows were later ringed on the 28th May and they later deserted the nest. On the 31st May a Great Spotted Woodpecker (*Dendrocopos major*) was observed clinging to the nest-box, with its bill through the entrance hole. This nest-box produced a second clutch of

six Tree Sparrow eggs when examined on the 7th June, five of which later hatched, the young being ringed before they flew, leaving behind the unhatched egg. When the nest was taken to pieces the unhatched egg of the second clutch was found under the nest material with the eggs of the Blue Tit and Tree Sparrow, which did not hatch in the first clutch.

There was a notable increase in the Tree Sparrow population in the wood in 1959 compared with 1958 and 1957. The wood is made up of deciduous and coniferous plantations separated by open grounds and rides. All the timber is sound and there is an acute shortage of natural suitable nesting holes. One box was being built in at a furious rate by a pair of Blue Tits within half an hour of being erected in late April.

The above observations were made in the company of Miss A. E. Robinson and Mr. W. Taylor who assist with the nest-box scheme.

SOME SPIDERS FROM NORTH PERTHSHIRE

D. W. MACKIE

During two weeks spent at the Scottish Field Studies Centre at Garth House, Aberfeldy, in the first two weeks of July, 1958, the opportunity was taken to collect spiders in this area.

The district makes a fascinating locality for spider collecting because of the proximity of several hills over 3,000 feet, including Ben Lawers, and affords a diversity of habitat with mountains, moorland, woodland, rivers and lochs.

Some of the collecting was carried out on the higher hills and here, mainly above 2,000 feet, some interesting Linyphiid species were recorded. The areas visited, apart from those in the immediate vicinity of Garth House, included Fort'ngall, Glen Lyon, Birks of Aberfeldy, Loch Rannoch, Lochan an Daim, and the hills, Ben Lawers, Schiehallion and Meall nan Tarmachan, all in the county of Perth.

All over this district the dominant species at this time of year was *Robertus lividus* (Bl.) mainly females with egg cocoons, but a few males were still present. This species was found, generally under stones, all the way from loch side level right up the hills to 2,000 feet or so. This is interesting, as it is unusual to find a member of the family Theridiidae so dominant. *R. lividus* is generally regarded as more common in the North, but, nevertheless, it has been recorded from most counties all the way from the Channel Islands to the Shetlands.

On the hills the following species were collected from 1,000 to 2,000 feet:

Xysticus cristatus (Clerk)
Lycosa pullata (Clerk)
Robertus lividus (Bl.)
Caledonia evansi O.P.C.
Oreonetides vaginatus (Thor.)
Leptorhoptrum robustum (Westr.)
Lephyphantes zimmermanni Berktau.

Robertus lividus and *Caledonia evansi* (all females) were the two species most common at these heights.

At heights of from 2,000 to 4,000 feet on the hills the following species were found, mainly under stones:

Ceratinella brevipes (Westr.)
Savignia frontata (Bl.)
Tiso aestivus (L. Koch)
Erigone tirolensis L. Koch.
Hilaira frigida (Thor.)
Lepthyphantes tenuis (Bl.)

Here *Erigone tirolensis* and *Hilaira frigida* were the most frequent species. On Ben Lawers, where both these species were frequent under stones, many of the females had two and sometimes three cocoons attached to the undersides of the sheltering stones. On this hill, Linyphiid spiders were more frequent above 2,500 feet than below this level.

Around the shores of Loch Kinardochy, in the marshy wet ground, two Linyphiids were common in small webs spun actually over the tiny pools. These were *Erigone dentipalpis* (Wider) and *E. atra* (Bl.). Under stones, on the heather slopes above this same loch, *Drassodes lapidosus* (Walck.) and *D. signifer* (C.L.K.) were found, some with egg cocoons.

On Schiehallion, at about 2,250 feet, a single female of *Oreonetides vaginatus* (Thor.) was taken and *Caledonia evansi* O.P.C. was frequent under stones. *Tiso aestivus* (L. Koch) one male and two females, were found in the same locality and

habitat. Another female *Oreonetides vaginatus* was also taken on the slopes of Creag an Lochain, near Meall nan Tarmachan at about 1,200 feet.

Cryphoeca silvicola (C.L.K.) was found among lichen on the sycamore trunks in the grounds of Garth House and also in Glen Lyon on pine trunks.

My thanks are due to Mr. G. H. Locket who has kindly verified those Linyphiid species in the following list marked thus *:

Species List

Ciniflo fenestralis (Stroem) ♀
Dictyna arundinacea (L.) ♀
Segestria senoculata (L.) ♀
Drassodes lapidosus (Walck) ♀
D. signifer (C.L.K.) ♀
Xysticus cristatus (Clerk) ♀
Philodromus aureolus (Clerk) ♀
Lycosa pullata (Clerk) ♀ & ♂
L. prativaga L. Koch ♀
L. amentata (Clerk) ♀
Tarentula pulverulenta (Clerk) ♀
Pirata piraticus (Clerk) ♀
Tegenaria domestica (Clerk) ♀
Cryphoeca silvicola (C.L.K.) ♀
Hahnia montana (Bl.) ♀
Theridion ovatum (Clerk) ♀ & ♂
T. pallens Bl. ♀
Robertus lividus (Bl.) ♀ & ♂
Tetragnatha extensa (L.) ♀ & ♂
Meta segmentata (Clerk) Imm. ♀
Meta merianae (Scop.) ♀
Araneus diadematus Clerk ♀ & Imm. ♂
A. quadratus Clerk ♀
A. cornutus Clerk Imm. ♀
Araneus cucurbitinus Clerk ♀
Ceratinella brevipes (Westr.) ♀
**Prosopotheca monoceros* (Wider) ♀
Gonatium rubens (Bl.) ♂
**Tiso aestivus* (L. Koch) ♀ & ♂
**Troxochrus scabriculus* (Westr.) ♀
Savignia frontata (Bl.) ♂
Caledonia evansi O.P.C. ♀
Erigone dentipalpis (Wider) ♀
E. atra (Bl.) ♀ & ♂
**E. tirolensis* L. Koch ♀ & ♂
Leptorhoptrum robustum (Westr.) ♀
Hilaira frigida (Thor.) ♀ & ♂
Meioneta saxatilis (Bl.) ♀
M. beata (O.P.C.) ♀
**Oreonetides vaginatus* (Thor.) ♀
Drapetisca socialis (Sund.) Imm. ♀
Tapinopa longidens (Wider) ♂
Labulla thoracica (Wider) ♂
Lepthyphantes tenuis (Bl.) ♀
L. zimmermanni Berktau. ♀ & ♂
L. mengei Kulcz. ♂
L. tenebricola (Wider) ♀
L. pallidus (O.P.C.) ♀
Linyphia pusilla Sund. ♂

FIELD NOTES

***Neobisium carpenteri* (Kew) (Pseudoscorpiones): The first record for Great Britain.**—Specimens of this false scorpion were collected by J. Hudson and P. Pollak at Colne Point, Essex, on September 5th, 1958. They were found in a sandy habitat at the base of marram grass plants near the sea and were later submitted to the British Museum (Natural History) for identification. Here they were examined by Mr. K. H. Hyatt who identified them as *Neobisium carpenteri* (Kew).

This is the first record for Great Britain for this species which was originally found and described by H. Wallis Kew at Glengariff, Co. Cork, Ireland, in 1909 and 1910, ' on a rocky wooded hillside, under the flaking outer bark of Arbutus trees in rock crevices and among dead leaves.' (Kew, H. W., Synopsis of the False Scorpions of Great Britain and Ireland, *Proc. Roy. Irish Soc.*, 55, 1911. Evans and Browning, Pseudoscorpiones, *Linn. Soc. Synops.*, No. 10, 14, 1954.)

The habitat for this new record at Colne Point differs considerably from that given by Kew, but that this species is firmly established at Colne Point is borne out by the fact that it has been collected again twice from the same locality since it was first found there in 1958.—D. W. Mackie.

Water-beetles and bugs at Barnbow, near Leeds.—Over a period of six years I have visited intermittently a pond on the site of the old munitions factory at Barnbow which has during that time produced several aquatic insects not known elsewhere in this part of Yorkshire. On my last visit in 1959 the area was being prepared for open-cast mining and now the pond will have vanished. It had evidently been used in some way during the 1914-18 war for the sides were of vertical brick wall and there were several inter-sections of single-brick wall. Over the greater part the water varied in depth from six inches to two feet. It had a clay bed forming a soft deep silt, and there were large areas of *Potamogeton* and *Callitriche* spp.

The most notable feature of the pond was the abundance of the beetle *Hygrobia hermanni* (F.), known as the ' squeaker ' from its habit of stridulating loudly when caught. An inhabitant of silt ponds, it can be taken by dredging through the mud in which it lives, or it may be caught when it ascends to the surface for air, which it will do if the bottom is stirred with a stick. *Hygrobia* is found in the south-east corner of the county and around Doncaster but not elsewhere in V.C.64. In 1953 a single specimen of another silt pond beetle, *Oreodytes halensis* (F.), was taken, but no further specimens were found. This beetle is normally restricted to East Anglia and Lincolnshire but odd specimens have occurred elsewhere and in 1942 it was taken at Askham Bog by Dr. Hincks. An interesting water-bug, the most abundant Corixid there in 1953, was *Cymatia bonsdorffi* (Sahl.), and at that time this was the only known locality in the county, though subsequently it was taken at Skipwith Common. In August, 1957, a single specimen of *C. coleoptrata* (F.) was taken, but no more specimens were found. The only other published localities for this bug in Yorkshire are Wentbridge and the Pocklington canal. Any one of these species would be sufficient to make the pond worth remarking; the four together make it outstanding in West Yorkshire and its passing is a sad event. A fairly complete list of the Corixid bugs was made and in addition to the above there were found *Callicorixa praeusta* (Fieb.), *Corixa punctata* (Ill.) and *C. panzeri* (Fieb.), *Hesperocorixa sahlbergi* (Fieb.) and *H. linnei* (Fieb.), *Sigara distincta* (Fieb.) and *S. lateralis* (Leach). Silt ponds like the Barnbow pond are rare in the West Riding and this was the product of artificial conditions. A thorough examination of any similar ponds that can be found might produce equally interesting results.—J. H. Flint.

A New Yorkshire Beetle.—Searching for Coleoptera by the winding river Rye near Helmsley on 8th March, 1956, Miss J. Parkin and I were chipping old ash logs while Mr. A. R. Fox explored a badly decomposed reddish, moss-covered log, when he exposed a click beetle 10 mm. in length. Elytra were dull red and thorax was glossy black: an unfamiliar species, and although renewed efforts were made, no further examples could be found.

The insect proved to be *Elater pomorum* Hbst., new to Yorkshire and the north of England, and said to occur chiefly in dead fruit trees. The site which is a cut-off or ox-bow liable to flooding, with live and decaying alders in the depression and old ash trees on drier ground, was again visited by Miss Parkin and me on 12th December, 1957, and after some hours of laborious flaking of rotten stumps, we succeeded in finding six perfect beetles and a slightly malformed specimen. All lay inert in small cavities an inch or so below the surface of the wood which was much firmer in consistency than the first log which had now disappeared.

Throughout 1958 the site was left undisturbed; and on 19th March, 1959, the trio of 1956 singled out likely-looking logs and to our relief two more of the rarities were found. Some problems now confronted us. Were the insects confined to the ox-bow ? Were they strays from hawthorn, the nearest approach to fruit trees in the locality ? And finally, did larvae also occur at the same period as mature beetles ?

On the 16th March, 1960, we invited Mr. J. H. Flint to join in the hunt, and it proved so successful that we were able to determine that the insects were confined to rotting alder and that they also occurred in a similar place more than half a mile upstream. Several well-grown larvae were located. On a previous visit a common Elater *Melanotus rufipes* Hbst. was found in association with *E. pomorum*, and during the last investigation adults of both sexes and big larvae of the familiar Lamellicorn *Sinodendron cylindricum* L. were exposed.

We are now convinced that *Elater pomorum* is well established at least in a certain length of the Rye valley.—John Armitage.

***Plusia acuta* Walker (Lep.) in Yorkshire.**—Members who attended the Entomological Section meeting in October, 1959, will remember seeing a specimen exhibited by Mr. W. Beck, of Aspin Lane, Knaresborough. This has been identified as *Plusia acuta* Walker by Mr. A. Watson of the British Museum. Mr. Beck is quite certain that he took it at M. V. light in his garden prior to 1956, but since he is not primarily a lepidopterist had taken it for a variety of *P. gamma* L. and had not labelled it or noted the exact date.—F. Hewson, Recorder, Lep. Comm.

BOOK REVIEWS

Dragonflies, by **Philip S. Corbet, Cynthia Longfield** and **N. W. Moore.** Pp. xii + 260 with 24 coloured and 8 black and white plates, distribution maps and many text figures, and with a key to the larvae by A. E. Gardner. The *New Naturalist* series. Collins, 1960. 42/-.

Dragonflies are striking and attractive insects, conspicuous in flight if often difficult to catch. The identification of adults presents few difficulties and is amply covered in readily available works. Their larvae are easily reared in aquaria, and the outline of life history and habits is well known. The authors of this new work, however, have dealt with all aspects of distribution, life history and behaviour of the dragonflies in great detail and the volume is a storehouse of information for the general reader and entomologist alike. The large number of good coloured illustrations enhance the value of the book although in reproduction the detail is not so clear as it undoubtedly is in the original photographs and some of the features described as clearly visible are not distinguishable. An interesting feature is the provision of maps showing the world distribution of many of the species in addition to the maps showing county distribution in Britain for all species, which it is a pleasure to note are up-to-date as regards the Yorkshire records.

The authors have done a considerable amount of experimental work on many aspects of larval and adult life and the chapters written around their own results are the most informative and stimulating, though one may question the validity of some generalisations. It is, for example, no guide to the tendency of dragonflies to ' home ' if the experiment is conducted with the small Coenagriide which are rarely found away from their breeding haunts. Would similar results have been obtained with the strong flying *Aeshna* species ? Similarly a great disparity between the numbers of larvae counted in a small pond and the mature adults later seen flying over it (Chap. 13) cannot be taken as indicative of the difference in absolute numbers since territorial behaviour of the *Aeshna* species would in any case limit the number of adults present (Chap. 9).

It is unfortunate that the authors did not keep clearly in mind their intended public, for the ordinary reader is as likely to be deterred by the technicalities of some parts as the entomologist is to be irritated by the unnecessarily prolonged and laboriously simplified preliminaries. But, irritated or not, the entomologist will regularly refer to this book in future and in particular to Mr. Gardner's excellent keys to the larvae.

J.H.F.

Handbooks for the Identification of British Insects. Published by the Royal Entomological Society of London.

Vol. I, parts 12 and 13. Mecoptera, Megaloptera and Neuroptera. By **F. C. Fraser.** Pp. 40, with 134 figs. Published October 27th, 1959. 10/-.

Vol. VII, part 2 (*al.*). **Ichneumonoidea. Ichneumonidae, key to subfamilies and Ichneumoninae I.** By **J. F. Perkins.** Pp. 116, with 425 figs. Published November 27th, 1959. 25/-.

The first of these handbooks includes the scorpion-flies, snake-flies, lace-wings, dusky lace-wings and their allies comprising the orders Mecoptera and Neuroptera of the recent new edition of Imms, the Megaloptera and Neuroptera (or Planipennia) being regarded as suborders. Fraser divides his ' order ' Megaloptera into two ' suborders ' which he calls Raphidoidea and Sialoidea despite their standard superfamily endings (-oidea). Apart from small details of this kind to which one might take exception this is an excellent publication dealing succinctly with the taxonomy, ecology and distribution of the 64 British species, prefaced by a short introduction. It is illustrated by a large number of very clear and excellent figures so characteristic of Col. Fraser's work. A small number of larvae are figured at the end of the work and there is a glossary of terms and abbreviations used in the text. The insects treated represent an admirable small group for amateur study and the present ' Handbook ' should provide just the stimulus required.

The task facing Mr. Perkins, that of providing a workable synopsis of the British species of ichneumon flies, is perhaps the most formidable of all in connection with this series. It is by far our largest family of British insects comprising nearly 2,000 species, and it has long been considered to be one of the most critical. This initial part deals with the subfamily classification of the family as a whole and with the species of the subfamily Ichneumoninae, excluding the tribe Ichneumonini. The

whole work is an immense advance over anything which has appeared before. The author has increased the number of subfamilies from 5 to 21 (one being the Agriotypidae now reduced to subfamily rank). This is a great improvement and introduces a greater element of precision into a previously very confused situation. The treatment of the part of the Ichneumoninae included in Part 1 is reasonably full and includes a great deal of new matter. The whole work is excellent though it is clearly no easy task to identify some of our ichneumons with its aid. This is no fault of Perkins' keys but rather ' the nature of the beasts ' themselves. The reviewer is only sorry that the pace of publication of this important revision is such that the five or six parts necessary to complete it are unlikely to be available in his lifetime !

W.D.H.

Darwin's Biological Work, Some Aspects Reconsidered. Centenary essays by **P. R. Bell, J. Challinor, J. B. S. Haldane, P. Marler, H. L. K. Whitehouse,** and **J. S. Wilkie.** Edited by **P. R. Bell.** Pp. xiv + 343, with 6 plates. Cambridge University Press, 1959. 40/-.

This volume consists of six essays contributed by different authors, each of which has some bearing on one of Charles Darwin's various publications. These essays are devoted to very diverse topics, and the Darwinian connection is the only factor they have in common. The titles are: ' The Movement of Plants in Response to Light ' (Bell). ' Palaeontology and Evolution ' (Challinor), ' Natural Selection ' (Haldane), ' Developments in the Study of Animal Communication ' (Marler), ' Cross- and Self-Fertilisation in Plants ' (Whitehouse) and ' Buffon Lamarck and Darwin: The Originality of Darwin's Theory of Evolution ' (Wilkie).

Of all these articles that by Haldane is probably the most significant contribution to scientific literature. Apart from a certain mathematical content it is not difficult to follow. On the other hand the remarkable essay by Marler is likely to attract the greatest popular interest. Those by Challinor and Whitehouse are also written in styles which naturalists of a variety of interests can appreciate although Whitehouse has chosen a subject of some complexity. All these four essays make stimulating reading. Turning to the other two essays that by Wilkie is undoubtedly scholarly but is essentially narrow in its scope. Of Charles Darwin's precursors only Buffon and Lamarck are discussed and in the context of this particular volume this seems to be an error of judgement. In his essay Bell reviews what is admittedly a complex and confused aspect of plant physiology, but this attempt to resolve the confusion is not entirely successful.

Considered as a whole, the volume gives an impression of some disunity. The contribution of Darwin, which is the thin thread which gathers these six essays within one cover, is to most of the authors rather incidental to the development of their main theme. Both the topics and the modes of treatment are so various that one is induced to speculate whether or not the reading public would have been better served if these essays had appeared separately in monograph form.

The editor concludes his preface with a quotation from Charles Darwin, written concerning *The Origin of Species*: ' the book *ought* to be popular with a large bag of scientific and semi-scientific readers.' Darwin's hope was in course of time abundantly justified, but applied to the present work, the quotation may prove to be a little optimistic, not to say immodest.

J.D.L.

The Proud Eagles, by **Mary Patchett.** Pp. 216. Heinemann, London, 1960. 21/-.

This is a formula story, set in the Australian outback, with a crippled boy whose bird-loving is obsessive concerning the great Wedge-tailed Eagles. Neighbours do not share his fondness and the story is one of a battle with guns and traps and the mentality which synonymises predators with ' vermin '. The author avoids sentimentality, although I repugn the easy nature-story convention of giving a sobriquet to every animal character, writes of the Bush with an evocative nostalgia, and, although the publisher's claim that she ' knows more about wedgetail eagles than almost anybody else in the world ' may be extravagent, there is nothing to criticise in her natural history.

A.H.

Born Free: A Lioness of two Worlds, by **Joy Adamson.** Pp. 160 with 90 photographic illustrations. Harvill Press and Collins, London, 1960. 25/-

Mrs. Adamson is the wife of the Senior Game Warden in an East African Game Department. During the course of his duties a lioness was killed from necessity and her young cubs were subsequently reared by hand. One of them was kept by the Adamsons, not as a pet but as a familiar, until she was three years old, accompanying them on safari, sleeping in their tents and retrieving small game. Apart from a few difficulties with donkeys and camels, the problem of being attended by a tame lion seem to have been no greater than those occasioned by a large dog, but the Adamsons decided that ultimately she should go free rather than suffer the restraints of confinement when it was no longer possible for them to share an outdoor life. She was therefore trained to hunt for herself, first of all by closing in on shot game and then on her own account. Remarkably and fortunately she was trusting with her kills, even assisting to load them into a car for transport to a more convenient feeding place. One astonishing photograph shows the lioness sitting on her kill, an adult buffalo, while a native assistant is cutting its throat in order that his share of the meat shall be lawful to his Muslim doctrines.

Eventually the day came when the lioness was left to her devices but the first attempt was unsuccessful. It is suggested that a tick-born virus which the lioness contracted on this attempt was due to her enlargement in an area remote from her native heath and that a natural immunity in one area does not convey protection in another, offering an explanation for the puzzling distribution of some other African mammals. The second attempt, nearer to her birthplace, was successful. Longer and longer periods of separation gradually satisfied the Adamsons that the lioness could not only fend for herself but was also beginning to associate with other lions with one of which she eventually mated. Always, however, she returned to greet her friends whenever they pitched camp in her domain, taking up temporary residence with them, gentle and confiding in all her behaviour, accepting their arrival with enthusiasm and their departure with dignity. A postscript to the book gives the news that she has now produced cubs.

To have retailed this story before the days of photography would have been to invite incredulity, to put it mildly, but the pictorial documentation is more than adequate to confer credence. They are witness to a story of great charm for which the only epithet remains—'incredible'.

It is only fair to say that the book is extremely well produced, at a price which conveys the publishers' faith that it will sell widely and well.

E.H.

Historical Geology, by **Carl O. Dunbar.** (2nd Ed.) Pp. xii + 500, with 20 plates, 406 figs., 3 tables and 11 charts. Chapman & Hall for John Wiley & Sons, Inc. 64/-.

Appearing in a new and enlarged format, this second edition of Dunbar's *Historical Geology* has been substantially rewritten to include new advances in geochronology, the cosmic history of the earth, and the new discoveries of the last decade in vertebrate and human palaeontology. Some early chapters are devoted to general principles and a useful appendix surveys the plant and animal kingdoms. Obviously a book of transatlantic origin is geared to the requirements of its readers, but there seems to be an undue disregard of the classic names of European geology. This is perhaps inevitable when certain strata or earth movements are not recorded in the rocks of North America. No mention, for example, is made of the Lias or of the Hercynian orogeny, and the term Carboniferous is dismissed in a few words to be replaced by the Mississipian and the Pennsylvanian which are elevated to the rank of Period.

The book is written with great clarity and is copiously illustrated with many excellent photographs, maps and drawings, not least in importance being the many reproductions of parts of Zallinger's beautiful reconstructions of ancient landscapes.

On the debit side must be recorded more than fifty typographical errors, including a number of inconsistencies in the spellings of repeated words. In addition, Charts 10 and 11 are transposed as are the 'right' and 'left' captions below Fig. 395 and their text reference on p. 464. Apart from these minor but nevertheless numerous blemishes, the volume admirably tells the past history of North America.

A.W.

Fossils, by **H. H. Swinnerton.** Pp. 274, with 24 photographic plates and 21 text figures. The *New Naturalist* series. Collins, 1960. 30/-.

No series of volumes on natural history is complete without one dealing with the natural history of the past. To write such a book which will make the creatures live again and avoid the details of taxonomy demands an author with specialist knowledge and with the gift of imaginative description. No one is better fitted on both counts than Professor Swinnerton who has added to the debt which geologists already owe him by producing this volume which is interesting and stimulating from beginning to end. It is essentially a summary of the geological history of Britain as deduced from the succession of life—animal and plant—as preserved in the rocks. The principal characters of each group are concisely described, their successive habitats deduced and the evolutionary story which they reveal outlined. A happy feature of the book is the way biographic details of pioneers in the study of fossils are introduced and the reader gets an insight into the excitement they must have felt. A short bibliography gives guidance to the reader who wishes to carry his study further. The illustrations are excellent and adequate and from every point of view the volume is to be commended. It is unfortunate that it should be marred by an undue number of printing errors, especially in the captions to the plates.

H.C.V.

British Caenozoic Fossils (Tertiary and Quaternary). Pp. 130, with 44 plates. British Museum (Natural History), Cromwell Road, London, S.W.7, 1959. 6/-.

Life before Man—The Story of Fossils, by **Duncan Forbes.** Pp. 64, with 125 illustrations in text. A. & C. Black, London, 1960. 8/6.

Fossil Collecting, by **Richard Casanova.** English edition prepared by Elaine Bryant. Pp. 142, with 36 plates and 83 text figures. Faber and Faber, London, 1960. 18/-.

Quetico Geology, by **V. B. Meen.** Pp. 53. Toronto University Press; London, Oxford University Press, 1960. 20/-.

Increased interest in geology in recent years is a noteworthy development in amateur science and the above issues cater for this interest in differing ways. The British Museum handbook is the first of a series intended to enable those with little previous knowledge to know what to expect when they visit the localities mentioned and to identify what they find. Over 300 different fossils are illustrated by excellent diagrams on 44 plates. The nomenclature is up to date but some more familiar names are given in brackets.

Mr. Forbes appeals especially to the young naturalist who inquires what fossils are, how they got into the rocks and how they are related to living organisms. Zoological details are reduced to a minimum but each group is illustrated by excellent photographs and clear line diagrams. It can be unreservedly recommended for younger readers.

Miss Bryant's edition of the American volume by Mr. Casanova follows somewhat similar lines, but the reader must have more basic knowledge to appreciate it. There are far more technicalities and too great an emphasis on classification has meant the introduction of groups of little importance. The geological time scale is discussed in the second half of the book. Twenty-five pages are devoted to a list of places in Britain where fossils may be collected but in most cases the locality details are very vague. The title of the work is rather unfortunate for there is much more in it than this title would suggest.

Quetico Geology is an attempt to describe in simple language the difficult geology of the Quetico Provincial Park, Ontario; an attempt which is marred by the diagrams which, in many cases, border on the childish and convey quite wrong impressions.

H.C.V.

A Key to the British Fresh- and Brackish-water Gastropods, by **T. T. Macan,** illustrations by R. D. Cooper. Freshwater Biological Association: Scientific Publication 13, Second Edition, 1960. 3/-.

In spite of the names of the mollusca being taken from Ellis (1926), this is an up-to-date and workable publication, admirably illustrated. Synonyms in other works, so confusing at all times, are also given. Invaluable to the freshwater biologist.

J.A.

The Future of Man, by **P. B. Medawar, F.R.S.** The Reith Lectures, 1959 Pp. 128. Methuen, 1960. 10/6.

My heart always goes out to those who are brave enough to accept the invitation to give the Reith Lectures. In the first five addresses, Professor Medawar, employing a terminology acceptable to listeners on the Home Service, explored the fallibility of prediction, especially with regard to human populations; the meaning of fitness as ' net reproductive advantage '; the limits of improvement, now extended somewhat by humans through manipulation of the environment (this is not by any means a novelty as the gall-wasps might testify); the genetic system of Man and the relationship between intelligence and fertility. It is in the final lecture which bears the title of the series that Professor Medawar leaves the factual highway and treads, lightly enough, over the quaking bog of prediction. Here, one feels, he leans too indulgently towards the school which argues that mankind now has the equipment to influence the course of his own evolution. In fact, he says, ' But although one or two biologists are still feebly trying to graft a Lamarckian or instructive interpretation upon ordinary genetical evolution, they are not nearly so foolish or dangerous as those who have attempted to graft a Darwinian or purely elective interpretation upon the newer, non-genetical, evolution of mankind.' You have been warned. The future is up to YOU.

A.H.

The Wild Life of Mexico, by **A. Starker Leopold.** Pp. 568, with 2 colour plates and 194 full-plate drawings and photographs. California University Press and (agents) Cambridge University Press. 1960. £5.

The author was employed by the Conservation Section of the Pan American Union to survey the wild-life conditions of the Republic of Mexico, and in this comprehensive volume provides a detailed account of all the aspects of the increasingly pressing problem of reconciling the preservation of all forms of wild life with human needs and activities.

The administrative approach is humane and progressive. There are forty-seven National Parks in Mexico dating from 1898 onwards and the game and protection laws and hunting regulations are as enlightened, clear and comprehensive as any which exist, although their application and enforcement must be a matter of difficulty away from urban areas. However, Mexico seems determined to close the stable door with the horse inside and the larger portion of the work under review comprises descriptions, life-histories and distributions of all the legitimate game species. A number of these are European introductions and many more are conspecific with birds familiar in Europe.

For those interested in the game of Mexico from any standpoint this is an authoritative and definitive work which will remain standard for many decades. It is well produced, the illustrations are all that could be desired, and there is an exhaustive bibliography.

A.H.

Ornithological Report for Northumberland and Durham for 1958, by **F. G. Grey.** The Natural History Society of Northumberland, Durham and Newcastle-on-Tyne. The Hancock Museum, Newcastle. 5/-.

This report raises the old subject for debate of style *versus* matter. Bulk has been reduced, not without loss. Rare species are accepted by a committee of unnamed persons without publication of the evidence; including such a difficult sight-record as a Great Snipe. Such movements of migrants as are covered are summarised perhaps unduly: Thirty Wrynecks ' were reported '. Northward passage of Swallows occurred on two days in May, but autumnal passage of the species is not mentioned; and other species are similarly treated. Farne Island birds are not included except in the total of birds ringed. Recoveries refer to only eleven birds, of which five were Starlings and one a Waxwing. Forty-four species and the initials of observers are omitted entirely from the Report.

The result is a well-written, clearly printed, more than adequately-spaced booklet, with an excellent illustration; easy for anyone to read, but with reduced ' meat ' for the serious student. Although a pleasure to read, and of comparative value and interest, the Report leaves questions that could, no doubt, have been answered, but for the high cost of printing which sets a limit to so many scientific publications to-day.

R.C.

Weathercraft, by **L. P. Smith.** Pp. 86, with 76 illustrations. Blandford Press. 9/6.

This is a book which in many ways presents the study of weather conditions and their effects in an original way. For the scientifically-minded gardener or farmer, the experiments suggested could prove to be of considerable value if he could find time to dabble in these pursuits. For the student there is much helpful material to guide and assist his studies, but one feels that the book must be used in conjunction with a standard work on meteorology, as there are many references and meteorological terms used which are not explained, e.g. in Fig. 38 one sees the words ' Katabatic Wind ', but nowhere is an explanation of this wind given. The photographs are interesting and well reproduced, and the diagrams are clearly drawn and usefully informative.

A.W.P.

Animal Tracks and Hunter Signs, by **Ernest Thompson Seton.** Pp. 160, with numerous illustrations. Edmund Ward, London, 1960. 15/-.

The name of Ernest Thompson Seton has been associated with the fiction and the practice of nature study for the greater part of this century and this final work is, in fact, posthumous, completed by his widow. It is primarily an American manual and the ability to read ' sign ', formerly determinant of whether one went hungry or otherwise, still has greater application in a country wherein the mammalian fauna ranges through a number of species which are dangerous when they feel threatened or which are so shy that only by reading evidence of their passing will their proximity be discovered. With the exception of the deer, this is rarely the case in the British Isles and the study of tracks and other trace evidence is only of incidental significance. Even in a wider context, the author makes much use of anecdote and, in fact, there is little more to be said but that when animals walk over soft ground, they leave an impression. This has been pointed out before.

E.H.

An Approach to Natural Science. Edited by **Brehaut** and **Dawson.** Pp. 264, with numerous text drawings. Methuen. 8/6.

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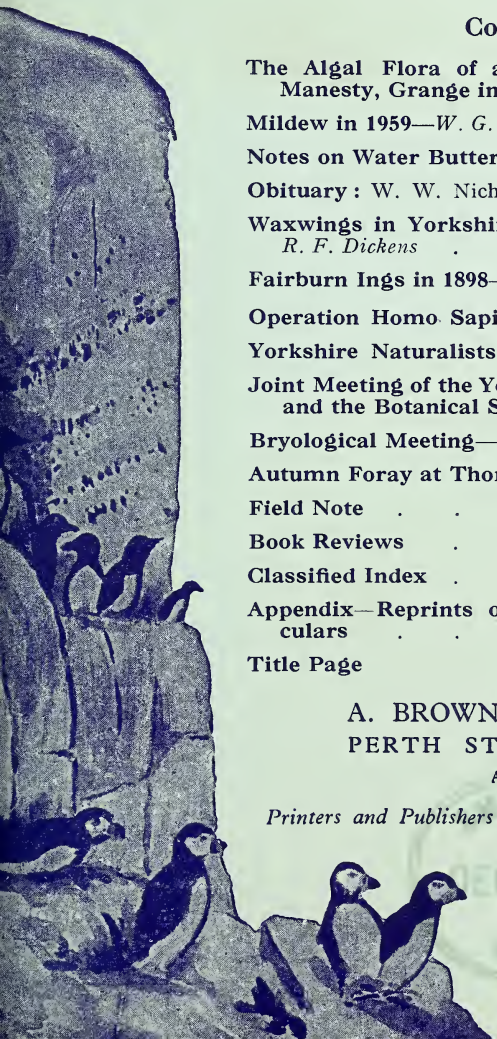

Contents

	PAGE
The Algal Flora of a Salt Spring Region at Manesty, Grange in Borrowdale—*F. E. Round*	117-121
Mildew in 1959—*W. G. Bramley*	121-122
Notes on Water Buttercups—*R. W. Butcher*	123-125
Obituary: W. W. Nicholas—R.C.	125
Waxwings in Yorkshire in the Winter 1958-59—*R. F. Dickens*	125-126
Fairburn Ings in 1898—*R. F. Dickens*	127-128
Operation Homo Sapiens	128
Yorkshire Naturalists' Union Excursions in 1960	129-138
Joint Meeting of the Yorkshire Naturalists' Union and the Botanical Society of the British Isles	138-139
Bryological Meeting—*F. E. Branson*	139-140
Autumn Foray at Thornton Dale—*W. G. Bramley*	140-141
Field Note	141
Book Reviews	142-148
Classified Index	149-152
Appendix—Reprints of Y.N.U. Excursions Circulars	I-XVIII
Title Page	

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THE ALGAL FLORA OF A SALT SPRING REGION AT MANESTY, GRANGE IN BORROWDALE

F. E. ROUND

The presence of saline springs on the delta of the R. Grange, at the southern end of Derwentwater (Nat. Grid. Ref. 255185) has been known for many years. There are two salt springs and a salty swamp in this region which has been used for mining; one of the springs has filled up an old mine shaft. The saline waters drain into a freshwater stream which flows from the neighbouring fells into Derwentwater. Algal samples were collected from both the saline and freshwaters in the neighbourhood, at stations labelled on the sketch map.

The presence of salt at the stations was detected in the field by adding a little silver nitrate solution to the waters.

The only chemical data available are from an analysis of the water at Station VI on 9.10.53 (Table I). For comparision the data for seawater (Harvey 1955) and for freshwaters (world average—Gorham 1957) are included.

	Total ions (me./l.)	Cl^- (P.P.M.)	$SO_4^=$ (P.P.M.)	Na^+ (P.P.M.	K^+ (F.P.M.)	Ca^{++} (P.P.M.)	Mg^{++} (P.P.M)
Station VI . .	410	14,555	0	4,950	72	3,850	270
Seawater . .	—	19,800	2,760	11,100	390	420	1,330
Freshwaters (World Average) .	2·35	8·37	17·4	8·4	3·1	29·8	5·0

TABLE I. The chemical composition of the water of the salt spring St. VI and that of seawater, and the world average of freshwaters.

The salt spring water therefore contains almost half as much sodium, a fifth as much potassium, nearly nine times as much calcium and a fifth as much magnesium as sea water. Compared with the world average for fresh waters (and the waters in this region have a lower ionic content than the world average), there is a very high level of minerals in the spring water. The water at Station VI is probably more concentrated than at the other saline stations and this is reflected in a very specialised algal flora, although the flora may also be influenced by the extreme organic pollution of this station by dead sheep. There are no detailed chemical data for the other saline stations, but it is clear that at least the chloride concentration is much greater than that of normal fresh waters which do not give a visible reaction with silver nitrate.

THE FLORA

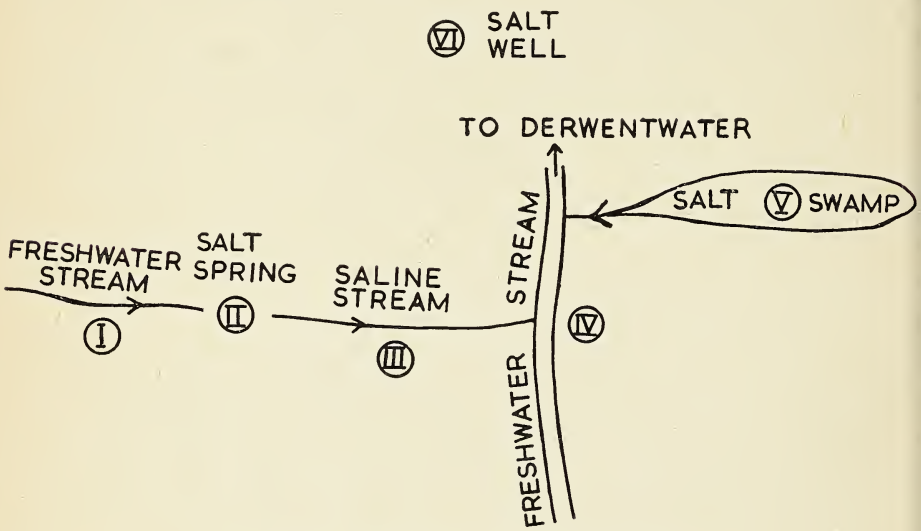
Station I

Two samples were collected from the feshwater stream above the main salt spring. These contained abundant *Penium cruciferum*, some cells of *Chlamydomonas* spp., *Euglena* spp., *Trachelomonas volvocina*, filaments of *Ulothrix* spp., *Tribonema affine* and numerous unidentified flagellates. In the diatom flora, the dominant spp. are *Eunotia veneris*, *E. exigua* and *Tabellaria fiocculosa* and the less abundant *Eunotia lunaris*, *Frustulia rhomboides* v. *saxonica* and *Eunotia pectinalis*. This assemblage of species is characteristic of flocculent peaty sediments in acidic waters and shows that there is little contamination of these stations with saline water. The other species present are *Diatoma hiemale* v. *mesodon*, *Fragilaria virescens*, *Eunotia diodon*, *E. pectinalis* v. *ventralis*. *Achnanthes linearis*, *Frustulia rhomboides*, *Stauroneis anceps* f. *gracilis*, *Anomoeoneis serians*, *A. serians* v. *brachysira* f. *thermalis*, *Pinnularia viridis*, *P. appendiculata*, *P. subsolaris*, *P. stauroptera*, *P. microstauron*, *Cymbella gracilis*, *C. naviculiformis*, *Gomphonema parvulum*, *G. gracile*, *Surirella linearis* and *S. angustata* all of which afford further evidence of the low ionic content of the water.

Station II

In this spring region clumps of Sphagnum were growing and algae were squeezed from them. The sediment between the Sphagnum clumps was also sampled. The

most abundant alga, other than diatoms, was a member of the Dinophyceae which was present in large quantity as empty cells (Fig. I). Also present were *Chlamydomonas* spp., *Microthamnion, Oedogonium* spp., *Mougeotia* spp., *Spirogyra* spp., *Oscillatoria* spp., *Merismopedia glauca, Anabaena* spp., *Synura uvella* (Fig. 2), *Dinobryon sertularia, Phacus pleuronectes, Euglenas pirogyra, Trachelomonas volvocina, T. hispida, T. oblonga* and *T. lacustris* together with the Desmids, *Penium spirolostrioatum, P. cruciferum, Euastrum ansatum, F. oblongum, E. pectinatum, E. binale* f. *gutwinskii, Micrasterias denticula, M. rotata, Cosmarium margaritiferum, Tetmemorus brebissonii, Closterium lunula, C. venus, C. dianae, C. leibleinii,* and *Hyalotheca dissiliens.* The dominant diatoms were *Nitzschia obtusa, N. capitellata, Pinnularia viridis, Cymbella gracilis, Frustulia rhomboides* v. *saxonica,* and *Achnanthes* spp. Of these *N. obtusa* and to a lesser extent, *N. capitellata* are species which are mainly found in saline habitats, whilst the others are characteristic of base poor waters.



Sketch map to show location of sampling stations I-VI

C. gracilis and *F. rhomboides* v. *saxonica* have been found to be almost confined to extremely acid loughs in Galway (Round 1959). It may be, however, that small traces of sodium or chloride ions are beneficial to their growth, for these loughs are in a region near to the coast where these ions would be present in rain water. Indeed, Gorham (1957) found that sodium chloride was the dominant component of the dissolved salts in some western Irish fresh waters. Two less frequent species which are indicators of salinity are *Rhopalodia gibberula* and *Nitzschia hybrida,* whilst the remaining species are freshwater forms, viz. *Tabellaria fenestrata, Eunotia exigua, E. lunaris, Achnanthes lanceolata, Stauroneis phoenicentron, Caloneis silicula, Nedium affine* f. *hercynica, Anomoeoneis zellensis, Diploneis ovalis, Navicula cryptocephala, N. cocconeiformis, N. mutica, Pinnularia braunii* v. *amphicephala, P. gibba, P. stomatophora, P. nodosa, P. maior, Cymbella naviculiformis, C. aspera, Gomphonema parvulum, Stenopterobia intermedia, Nitzschia ignorata,* and *Surirella birostrata.* Of these, *Achnanthes lanceolata, Anomoeoneis zellensis,* and *C. aspera* are more common in base rich habitats and this may not be entirely inconsistent since the chemical analysis of the deep well shows a high calcium content. The remaining species, in particular *Pinnularia* spp., *Stenopterobia intermedia* and *Surirella birostrata* are all indicative of base poor waters (Round, 1957 and 1959). Their presence implies that these species are tolerant of high levels of bivalent cations when the monovalent ions are also high or alternatively that they tolerate the calcium concentration only in the absence of bicarbonate ions.

Station III

A series of samples of sediments were taken down the saline stream, which rises near the main salt well and discharges into the freshwater stream. The number of species other than diatoms was much reduced here compared with Station II, possibly because of the greater flow of water. The only algae recorded were, Dinophycean cells (as Fig. 1), *Oscillatoria, Clostreium leibleinii* and *Trachelomonas oblonga* nearest the salt spring, *Closterium praelongum* f. *brevior, Euglena* spp., *Phacus pleuronectes* and *Trachelomonas hispida* in the middle region, *Closterium leibleinii and C. praelongum* f. *brevior* near the junction with the freshwater stream. Apart from the first two species there is little indication of the saline nature of the stream. The diatom flora of the six samples from this saline stream produced a large number of species

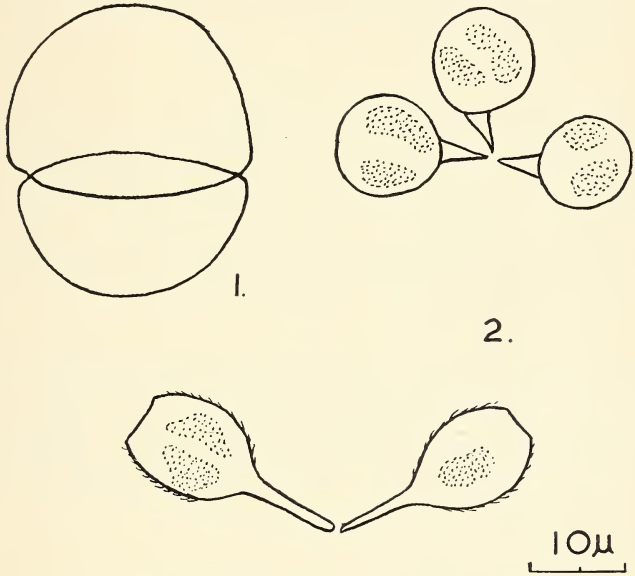


Fig. 1. An empty Dinophycean cell such as is common at certain stations
Fig. 2. Cells of *Synedra uvella*. Upper three seen from above, lower from the side showing the scales inserted in the pellicle.

amongst which the dominants were *Navicula peregrina, Stauroneis anceps, Surirella birostrata, Navicula cryptocephala, Rhopalodia gibberula.* In the two samples from the mid zone of the stream *Fragilaria construens* v. *subsalina* and *Diploneis ovalis* were abundant. Of this list *N. peregrina, R. gibberula* and *F. construens* v. *subsalina* are indicators of the increase in sodium chloride content, but as at Station II they are accompanied by species of acid waters. Less abundant were: *Fragilaria intermedia, F. construens, Achnanthes lanceolata, Eunotia exigua, E. lunaris, E. lunaris* v. *subarcuata, E. pectinalis, E. pectinalis* v. *subarcuata, E. pectinalis* v. *minor* f. *impressa. Frustulia rhomboides* v. *saxonica, F. vulgaris, Caloneis silicula, C. bacillum, Stauroneis phoenicenteron, Neidium iridis, N. affine* v. *amphirhynchus, Anomoeoneis zellensis, Navicula cocconeiformis, N. pupula* v. *capitata, N. radiosa, N. placentula, Pinnularia gibba, P. braunii* v. *amphicephala, P. maior, P. viridis, P. nodosa, P. stomatophora, P. divergens, Cymbella gracilis, C. naviculiformis, C. aspera, Gomphonema acuminatum,* v. *coronata, G. parvulum, G. intricatum, Nitzschia capitellata, N. hybrida, N. ignorata, N. obtusa, N. frustulum, Surirella angustata, S. tenera* v. *nervosa* and *S. elegans.*

Station IV

Two samples were taken from the freshwater stream and the dominants in them were *Scenedesmus quadricauda* and *Staurastrum hirsutum* together with *Penium*

cruciferum, Euastrum insigne, Closterium acutum, C. didymotocum, Gymnozygon moniliformis, Trachelomonas volvocina and *T. hispida.* Numerous empty Desmid cells which had been washed down off the surrounding fells were also present. The dominant diatoms were *Frustulia rhomboides* v. *saxonica, Tabellaria flocculosa, Eunotia veneris, E. lunaris* v. *subarcuata, E. exigua* and *Diatoma hiemale* v. *mesodon.* Also present were *Fragilaria intermedia, Eunotia pectinalis, E. monodon* v. *maior* f. *bidens, E. lunaris, Frustulia rhomboides, Anomoeoneis serians, A. serians* v. *brachysira, Navicula cari* v. *angustata, Pinnularia subsolaris, P. borealis, P. viridis, P. divergens* v. *undulata, Cymbella ventricosa, C. naviculiformis, Gomphonema parvulum, G. olivaceoides* and *Surirella linearis.* This entire flora was quite distinct from that of the saline stream; all the indicators of salinity were absent, the number of diatom species was much reduced (probably owing to the greater rate of flow and hence reduction in the amount of sediment) and the dominants were characteristic of water of low base status.

Station V

This was a swampy region of peaty sediment flushed with saline water. The flora contained numerous Dinophycean cells (Fig. I), *Chlamydomonas* spp., *Spirogyra* spp., *Lepocinclis ovum, Phacus curvicauda, P. pleuronectes, Trachelomonas volvocina* and *T. oblonga.* The dominant diatoms were *Eunotia lunaris, Pinnularia viridis, Nitzschia obtusa, N. capitellata* and *Tabellaria flocculosa* together with *Eunotia pectinalis* v. *minor* f. *impressa, Stauroneis anceps, S. phoenicenteron, Neidium affine* v. *amphirhychus, Pinnularia braunii* v. *amphicephala, P. viridis, P. gibba, Cymbella naviculiformis, Gomophonema parvulum* and *Surirella birostrata.* The absence of Desmids distinguished this from the previous saline stations, otherwise there was again a mixture of species of saline and base poor waters.

Station VI

The old mine shaft was filled with saline water and contained numerous dead sheep. This combination resulted in a flora composed of a few species growing in prodigious numbers. The only algae other than diatoms were *Euglena* and *Ulothrix* spp. The flora was completely dominated by *Nitzschia palae, N. obtusa* and *Navicula cryptocephala.* Also present but rare were *Fragilaria intermedia, Achnanthes exilis, Amphora veneta, Caloneis bacillum, Navicula cari, N. peregrina* and *Hantzschia amphioxys.*

Discussion

The freshwater stations support a flora typical of a region of acid drainage waters. Many of the recorded species are found elsewhere in small bodies of water and in the littoral zones of lakes (cf. the flora at Stations I and IV with data in Round (1957a and b)). The only other study of algae in streams in this region is that of Douglas (1958), who investigated a rocky stream, whereas the present samples were from silted streams. Nevertheless, certain points of interest may be derived from a comparison. The chemical data for Belle Grange Beck in Douglas (1958) suggests that the concentration of ions in flowing waters like that of the neighbouring lakes in this region is much lower than the world average for fresh waters quoted above. It is probable therefore that the difference in chemical composition between the fresh and saline habitats is even greater than the above data suggest. Of the diatoms occuring in the Manesty freshwater streams, only *Eunotia lunaris, Achnanthes linearis, Gomphonema parvulum* and *G. olivaceoides* were recorded in Belle Grange Beck. The differences are probably because of the natural predominance of attached species in the rocky Belle Grange Beck and because of the predominance of non-attached species in the Manesty streams. The species in both streams are characteristic of base poor waters and few if any of the indicators of waters of higher nutrient status are present. In comparison the flora of streams around Malham Tarn, Yorkshire (Round, 1960) and at Leuknor (Round, 1957c), which had many of the species occuring in Manesty and Belle Grange Beck streams, also supported species indicative of waters of high base status which are completely absent from the Lake District streams. The dominant diatoms at the stream stations are non-motile species, only one of which, *Frustulia rhomboides* v. *saxonica,* belongs to the section Biraphidineae and even this species lives in mucilage and is not readily motile. Many of the less common diatoms are motile species belonging mainly to the genera

Stauroneis, Anomoeoneis, Pinnularia, Cymbella and *Surirella* while of the non-diatom genera *Scenedesmus, Penium, Euastrum, Closterium* and *Trachelmonas* are most abundant. These genera are uncommon in lowland streams where *Gyrosigma, Caloneis. Navicula, Amphora, Nitzschia* and *Cymatopleura* are frequent, and Desmids are very rare (Round, unpublished data).

The effect of salinity is mainly evident in the occurence of *Nitzschia obtusa, N. capitellata, N. hybrida, Rhopalodia gibberula* and *Fragilaria construens* v. *subsalina* in the saline stream (Station III) and of *Nitzschia obtusa* and *N. capitellata* in the swampy region (Station V). None of these are very strong indicators of saline or brackish waters and none of the species found in saline streams in the Midlands near Droitwich (Round, unpublished data) have been found. In this latter region an almost brackish water flora was found with abundant *Caloneis amphisbaena* v. *subsalina, Navicula digitoradiata, Gyrosigma* spp., *Pleurosigma* spp., *Amphora* spp., *Amphipleura* spp., *Bacillaria paradoxa, Nitzschia sigma, N. closterium* and *Surirella gemma* to mention only the commoner indicators. Thus the flora of the waters at Manesty may be related to the facts that (a) the sodium concentration, although high, is only about half that of seawater, (b) the calcium concentration is nearly nine times that of seawater, (c) there is obviously a large amount of organic matter in the waters which allows the development of a desmid flora, particularly at Station II. This suggests that the waters should be termed mineral rather than saline. Both a high sodium chloride and a high calcium concentration are incompatible with the diatom flora found in the saline stations and it appears that the organic nature of the stream sediments and the waters is sufficient to counteract the action of these ions. In the main spring (Station II) the effect of the organic material is sufficient to allow the development of Sphagnum tussocks and a fairly rich Desmid flora.

Acknowledgements

I wish to thank Dr. J. W. G. Lund and Professor E. W. Yemm for reading the manuscript and making helpful suggestions.

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MILDEW IN 1959

W. G. BRAMLEY

During the summer and autumn of 1959 the conidial stage of the Erysiphaceae was extremely prevalent and some attention was paid to attacks on various hosts, chiefly in the Pickering neighbourhood. On some hosts the perfect fructifications are very rarely seen but this year saw their development on a number of hosts in some abundance.

The following table shows the genera and species which were examined.

P = Pickering.
B = Bolton Percy Area.

Erysiphe cichoracearum DC.
Arctium sp., P.
Mentha arvensis, P.
Plantago major, P.B.
Sonchus oleraceus, P.
Senecio vulgaris, P.B.

Cleistothecia are not common on *Mentha*. On *Sonchus* and *Senecio* they are frequently hidden under the thick felt of mycelium.

E. galeopsidis DC.
Stachys sylvatica, P.B.

E. graminis DC.
Agropyron repens, P.B.
Dactylis glomerata, P.
Hordeum cult. var., P.
Triticum cult. var., P.

Many species of grass are attacked by the oidium stage often quite early in the year. Cultivated cereals especially under wood sides and big hedges are often severely attacked.

E. polygoni DC.
Anthriscus sylvestris, P.B.
Brassica cult. var. ' Swede ', P.
Galium aparine, P.B.
Heracleum sphondylium, P.B.
Lamium purpureum, P.
Lathyrus pratensis, P.
Pisum cult. var., P.
Polygonum aviculare, P.B.
Ranunculus repens, P.B.
Senecio vulgaris, P.B.
Trifolium sp., P.B.

Swedes often suffer badly by mildew but this is the first time I have seen the cleistothecia which were present, chiefly on the leaf stalks, by mid-October. Other Brassica crops apparently failed to produce the perfect fruit. Dr. Dennis informs me that he found cleistothecia on Michaelmas Daisy but not on Groundsel in the south.

Podosphaeria oxyacanthae (DC.) de Bary.
Crataegus oxyacanthoides, P.

This is widespread in the oidium stage but generally restricted to a few shoots on a single bush. Sucker growths from a felled hedge were heavily infected and immature cleistocarps were noted by mid-September and ripe ones by the end of October.

Sphaerotheca pannosa (Wallr.) Lev.
Filipendula ulmaria, P.
Poterium officinale, P.
Rosa arvensis, P.
Rosa sp. cult. var., P.

S. fuliginea Salmon.

Was very common on *Taraxacum officinale* (P.B.) and I did not see *E. polygoni* on this host. The conidia are much smaller, 25-32 × 14-18 μ and the large cells of the cleistocarp wall make it easy to identify.

Uncinula aceris (DC.) Sacc.
Acer campestre, P.
Acer pseudoplatanus, P.

On Sycamore cleistocarps are freely produced but this year is the first time I have seen them on Field Maple. An infected bush of the latter was under observation for a number of years and only produced the conidial stage.

Microsphaeria aphitoides Griff. & Maubl.

Special attention was paid to the Oak Mildew which is generally conspicuous on sucker growths. No cleistothecia, however, were found either on these or on mature trees. From Dr. Dennis I learn that they were found in the Thames Valley and also in Scotland, all on mature trees.

Hosts on which only Oidium stage was observed:
Aster sp. (Michaelmas Daisy), P.B.
Alchemilla vulgaris agg., P.
Beta vulgaris (Mangold and Sugar Beet), P.
Brassica arvensis, P.
Brassica cult. var. ' Kale ', P.
Capsella bursa-pastoris, P.B.
Centaurea nigra, P.
C. cult. var., P.
Cirsium vulgare, P.
Matricaria matricarioides, P.
Papaver sp., P.
Pyrus malus, P.
Rhaphanus rhaphanistrum, P.
Ribes grossularia, P.
Quercus sp., P.B.
Scabiosa arvensis, P.
Veronica arvensis, P.
Cucurbita pepo (Vegetable Marrow), P.

NOTES ON WATER BUTTERCUPS

R. W. BUTCHER

In spite of accounts of the Water Buttercups by Hiern (1871), Babington (1897), Pearsall (1929) and Glück (1936), there is still a great deal about their biology and taxonomy that is not understood. It was hoped that there would have been, before now, time and opportunity to follow up some of the problems which were suggested (Butcher, 1948) some years ago. Since this has not been achieved, the following somewhat disconnected observations are put forward to assist others in the identification of these interesting plants.

Forms of Still Water

1. *Ranunculus peltatus.*

This species, together with *R. heterophyllus* and *R. radians* is put under *R. aquatilis* L., by Clapham, Tutin and Warburg (1952). Actually it is quite different physiologically from the other two. It will, if submerged, elongate the flowering pedicels until the flower-bud breaks the surface of the water, and only then will it flower (Butcher, 1940). The other two plants do not do so, in a large number of ascertained cases. As a result of this habit, *R. peltatus* may be distinguished not only by the less divided floating leaves with rounded teeth, but also by the inequality of length of the flowering pedicels and floating-leaf petioles. A second character of *R. peltatus*, as far as observations go, is that it does not flower till the primordia of the floating leaves are developed. The first flowering pedicel is thus in the axil either of the first floating leaf or the last submerged leaf. It is doubtful whether there is a form of this species with submerged leaves only, at the time of flowering, as in the case of the next.

At the end of the flowering season, divided submerged leaves are again developed at the apex of the flowering stem, but no flowers are produced among these.

2. *R. heterophyllus* Weber = *R. aquatilis* L.

This is the plant in the Linnean Herbarium. As indicated it differs from *R. peltatus* in the fact that the flowering pedicels do not elongate to reach the surface of the water and the buds remain unopened under the water, making the pedicels all about equal length. Achenes may develop without contact with air. A further difference is that flowering often occurs before floating leaves commence to develop and it appears that the plant may go through a whole season without developing floating leaves at all. Such plants are often referred to as var. *submersus* Bab. This is a convenient name but such forms have no definite taxonomic status. Several times such plants have been collected in full flower and after a few weeks in an aquarium, they have developed the typical floating leaves.

These forms without floating leaves are difficult to distinguish from some examples of *R. trichophyllus*, the only ascertainable difference being the larger size of the flowers, which in *R. trichophyllus* are 6-12 mm. diameter and in *R. aquatilis* 12-15 mm. diameter.

This is undoubtedly the commonest and most widely distributed of the still-water buttercups, and is very variable. Its floating leaves have rather more acute lobes than those of *R. peltatus* and are usually trifid or orbicular in outline, whereas in the last named, the leaves are reniform or orbicular in outline.

3. *R. radians* Revel.

In my opinion this cannot be distinguished with cetrainty from *R. aquatilis* L. as the sheets in various herbaria show. It is claimed to have more rigid segments to the submerged leaves but there is a wide range in this character correlated with the rather small flowers and acutely toothed floating leaves. It is sometimes treated as a variety of *R. trichophyllus* probably because it can, like the last, flower freely without producing floating leaves. Glück (1924) describes two major species here, *R. peltatus* and *R. radians*, and under the former he puts plants which by their general appearance are typical *R. heterophyllus* (a species he does not recognise); hence he divides all these plants into *R. peltatus* and *R. radians* instead of into *R. peltatus* and *R. heterophyllus* as was largely done in the past by British botanists.

Forms of Running Water

There are undoubtedly a greater number of species and forms in running water than usually recognised. The best marked and most familiar of these is *R. fluitans* Lam. which has a submerged leaf of comparatively few (12-50) ultimate segments, a smooth receptacle and a flower peduncle shorter than the subtending leaf. It is said that it occasionally develops floating leaves but the only case seen by the author is a somewhat small and unusual plant from the Whiteadder, Berwick. The typical form occurs in most rivers in England, except Cornwall and the south-east: it is very rare in Wales, absent in Scotland north of the Whiteadder and absent in Ireland except in one river in Co. Down.

A second plant which is abundant in the higher reaches of all highly calcareous streams in Britain is a plant usually referred to as *R. pseudofluitans* Baker and Foggitt (see Butcher & Strudwick, fig. 12), but as will be shown later, much of this material is probably not that species. This species is distinguished by its rather larger flowers (20-25 mm. diam.), its penducles somewhat longer to much longer than the leaves, the ultimate leaf segments short and numerous (60-120) and the complete absence of undivided floating leaves. At first sight it would seem illogical to base a species on a negative character, namely the absence of the floating leaf, but considerable study of this plant under many varied conditions has convinced me that floating leaves do not form in any instance and that, physiologically as well as taxonomically this plant is a sound species and as such it is described below as *R. calcareus*.

It differs form *R. fluitans* in its more numerous and more slender leaf segments as well as in the hairy receptacle and long peduncles; it differs from *R. pseudofluitans* by the rather less robust stem, the longer peduncles as well as in the absence of floating leaves, and from *R. trichophyllus*, to which it would appear to be most closely related, in its altogether larger size.

Another little-understood river plant in which no floating leaves develop is the plant called *R. sphaerospermus* Boiss. Having been unable to obtain specimens from Syria or to see the type, one cannot say whether the English plants are in fact identical, but except for larger achenes they are very similar, and what is certain is that they form a distinct taxon. It is in all respects closely related to *R. calcareus* and has the same long peduncles and large (perhaps larger) flowers. It stands out at once in the very numerous (over 200) stiff short segments to the leaves. The plants keep this character throughout the year, though they become less bunched and rigid in the winter months (Butcher, 1940). The barren plants are particularly striking in the spring when, in comparison with *R. calcareus*, the plants seem to be nothing but leaf segments as these are so numerous that they completely hide the stem.

R. pseudo-fluitans (Newbould ex Syme) Baker and Foggitt.—The citation of the authors of this plant has led to much confusion. It was a name apparently first used by Newbould, and subsequently freely cited by Syme, Babington and others, before any satisfactory diagnosis was made. These authors refer definitely to a plant from the rivers of Ireland which had floating leaves and was much like *R. peltatus*.

A plant answering this description is abundant, not only in the Irish rivers, but in the streams in Wales, south-western England and occasionally elsewhere. It is a robust plant with long flowering peduncles and always develops floating leaves at its flowering stage. The number of segments to the submerged leaves is intermediate in number (100-200) to those found in *R. calcareus* and *R. sphaerospermus*.

Pearsall (1929) grouped together under this name the above plants and those without floating leaves, which I now refer to *R. calcareus*, and then added a variety *minor*. What this variety embraces I cannot ascertain. There is a wide range of size in both species and I am of the opinion that var. *minor* must be deemed an ambiguous name.

It appears that by no means all the forms in rivers can be grouped under the above names. In the New Forest streams and elsewhere there is a slender plant with comparatively few fine segments to the lower leaves and truncate to reniform little-toothed floating leaves. When such plants were transferred to still water they took up a form indistinguishable from *R. peltatus* and it would appear that the name *R. peltatus* var. *penicillatus* Dumort is best applied to these.

There is also in the uppermost reaches of the Thames at Cirencester a very robust and large flowered form which, though like *R. pseudofluitans* in many respects, needs further study.

Diagnosis of *R. calcareus* n.sp.

Planta aquatica foliis omnibus submersis flaccidis capillaribus dissectis, segmentis ultimis 60-120: floribus 20-25 mm. diam.; pedunculis quam foliis multilongioribus; staminibus 20-50, quam pistillo longioribus; carpellis ½-ovoideis, hispidus.

Type: Herb. Butcher, No. 21, R. Lea, Hertfordshire.

Water plant with numerous branched flaccid stems up to 100 cm. long. Only submerged leaves present, tassel-like, flaccid, ultimate segments 60-120: flowers usually large, 20-25 mm. diam.; petals contiguous, white with yellow base; penducles longer than the leaves; stamens 20-50, rather longer than pistil; carpels ½-ovoid, hispid. Usually in freely running water (and rarely in still water) of a high calcium content throughout the British Isles.

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Obituary

W. W. NICHOLAS

We have to record the death at an advanced age of one who had a keen and life-long interest in birds, who made no claim to be a scientific ornithologist but who was, nevertheless, a careful and accurate observer. Nicholas did not take up bird-photography until middle life, and I much admired the way in which he soon established himself in the front rank by his ability and the quality of his work. Visits to the Hull Photographic Society some thirty years ago first brought me into contact with him, and he joined the Zoological Photographic Club in 1932 and the Y.N.U. in 1936, after which for a number of years he regularly attended ornithological meetings, figuring on the programme with beautiful sets of slides in several years. He worked in many parts of Britain, including Orkney, Shetland, the Scottish Highlands, and Devon and Cornwall. A Corncrake discovered at a Y.N.U. meeting in the war years sent him with his camera to Ingleton. A consultant shipping engineer by profession, he tackled such species as Heron, Sparrow-Hawk and Kestrel with confidence; and his Choughs on cliffs in Donegal will long be remembered. His books included *A Sparrow-Hawk's Eyrie*, published in 1937 and *Stories from a Bird Watcher's Log* in 1945. His gift to the Union of £100 of Government Stock, the income to be used for ornithological purposes, perpetuates his support of the Y.N.U. and the Ornithological Section.

R.C.

WAXWINGS IN YORKSHIRE IN THE WINTER 1958-59

R. F. DICKENS

An appeal through *The Naturalist* for Waxwing records for the winter 1958-59, brought the following direct information. Some additional records were probably sent to the Editor of the Y.N.U. Ornithological Report. It is obviously impossible to give full details of all records in that report but it does seem desirable that they should be collected together each year and analysed, in view of the greater frequency with which the species has been occurring in Western Europe.

During the 1959-60 winter, it would seem that Waxwings were more numerous than in the year under consideration. Certainly in the early part of the winter they

occurred in greater numbers (see Y.N.U. Ornithological Report for 1959). Will observers please let V.C. recorders have detailed notes of all Waxwings seen in the first few months of 1960 and also keep precise records of all 1960-61 birds, so that we may have as complete a picture as possible ?

Date	*Number of Waxwings*	*Locality—Remarks*
1958		
13th Dec.	3	Near Sutton-on-Hull.
21st ,,	2	Snilesworth Moor, near Osmotherley.
28th ,,	' several '	Near Lingdale.
	2	Hornsea.
' late ' ,,	over 40	Thornton-le-Dale.
1959		
3rd Jan.	1	Near Guisborough.
	12	Whitby.
4th ,,	16	Sleights.
6th ,,	*ca.* 150	Runswick Bay. Very tired, apparently just come in.
10th ,,	1	Near Ripon.
	4	Triangle, near Halifax.
11th ,,	1	Collingham (also present on 12th).
	1	Triangle.
	2	Sleights.
12th ,,	6	Grassington.
	6-8	Sleights.
13th ,,	1	Halton, Leeds (also on 14th).
	2	Beverley.
	7	Grassington.
	2	Sleights.
13th-18th ,,	6	Near Driffield.
17th-22nd ,,	6	Crossgates, Leeds (decreasing to one).
24th ,,	1	Otley—remained until 5th Feb.
25th ,,	1	Hagg Wood, near Hemsworth.
	14	Long Sandall, near Doncaster.
26th ,,	1	Ramsgill, Nidderdale.
	1	Staithes.
31st ,,	3	Ilkley (also one on 7th Feb.).
	1	Staveley, near Harrogate.
1st-2nd Feb.	19	Totley, near Sheffield (dropped to 7 or 8 by 14th Feb.; 5 or 6 by 26th Feb.; 6 on 14th Mar.; 4 on 16th Mar.).
3rd ,,	1	Lawnswood, Leeds.
7th ,,	1	Doncaster.
27th Mar.	5	Gouthwaite, Nidderdale.
1st April	8	Harrogate (4 on 2nd April; 2 on 3rd April; one from 6th-9th April).
3rd-7th ,,	5	Masham.
4th ,,	10	Boltby Forest, Thirsk (8 on 6th April; 7 on 8th April).
	5 or 6	Cawood, near Selby.

These records indicate not only the main periods of immigration and the gradual spread west and south-west from the East Coast, but also a peak of returning birds in late March and early April.

Observers, all of whom I thank for the trouble they took in sending notes, also reported in a number of instances on the food taken by these wintering Waxwings. One party of birds fed on holly, two on hips, five on hawthorn, six on *Cotoneaster* one on guelder-rose, one on crab-apples, one on apples still on the tree, and one on *Berberis*. One party was watched making flights up to 50 feet in the air as though catching insects, and they were also seen drinking from a ditch, while birds in another party were apparently taking grit from the road beneath the hawthorn on which they had been feeding.

FAIRBURN INGS IN 1898

R. F. DICKENS

As a result of a note in *The Dalesman* about their work, the Nature Conservancy recently received a letter from Mr. A. E. Greaves of Walton, near Wakefield, telling them of his earlier connection with Fairburn Ings and of his continuing interest in the area. A copy of his letter was forwarded to me as Hon. Chief Warden of the Fairburn Ings Nature Reserve and I subsequently had the privilege and pleasure of meeting Mr. Greaves and learning from him a good deal about what the area was like at the turn of the century. He has also kindly allowed me access to his shooting ledgers for the years 1898-99 and 1899-1900, and given me permission to quote from them.

Early in 1898, Mr. Greaves and his two older brothers became tenants of the shooting rights over the Fairburn Estate which belonged to the trustees of the late Lord Palmerston. They continued to hold the rights until the estate was sold and split up shortly after the 1914-18 war. Their shooting extended over arable land lying north of the present reserve, as well as over the greater part of the ings which was then grassland but is now permanent flood-land.

The connection of the great statesman with the area is perpetuated in the name Palmerston Lodge which appears on the present map. Magnesian limestone, for use in rebuilding the present Houses of Parliament in Palmerston's day, was quarried on his estate at Fairburn. A tunnel and canal to the river were made for the start of its journey to London. Fairburn ' Cut ' is also now part of the reserve and the quarries are worth exploring.

Referring to the riverside meadows in 1898, Mr. Greaves writes: ' The effects of coal-mining, followed by subsidence, were beginning to show; and after rain the area became waterlogged and an ideal home for all sorts of wildfowl . . . The first pair of Swans appeared about 1901 or 1902 and had a successful hatch in the following year, most carefully guarded by our keeper. Very strict instructions were given to our guests never to fire at or near the Swans.'

'Another interesting item', Mr. Greaves also records, ' is that about 1904 or 1905, our keeper reported the presence of a Nightingale in a small wood (promptly christened Nightingale Wood). We kept this secret, of course, but satisfied ourselves by several visits that the keeper was correct. For the following two years in succession we discovered a nest which was carefully looked after, and successful hatches followed.'

I. Summary of Game/Wildfowl Taken 1898-1899

Month No. of days	Aug. 4	Sept. 8	Oct. 7	Nov. 5	Dec. 5	Jan. 5	Feb. 3	Totals for 37 days shooting
Partridge	–	146	46	2	4	10	--	104 brace
French Partridge	–	8	–	–	–	1	–	4½ brace
Pheasant	–	–	3	–	3	1	–	3½ brace
Hare	–	14	5	–	–	–	–	19
Rabbit	–	14	11	7	41	7	4	42 couple
Woodcock	–	–	–	1	–	–	–	1
Plover (Lapwing)	–	–	2	3	8	4	–	17
Land-rail (Corncrake)	–	2	–	–	–	–	–	2
Wild Duck (Mallard)	7	2	1	15	10	5	6	23 brace
Teal	–	2	1	2	–	–	1	3 brace
Shoveler	1	–	–	–	1	–	–	2
Coot	4	2	–	2	–	–	7	15
Water-hen (Moorhen)	13	2	5	15	5	1	5	46
Water-rail	–	1	–	1	–	–	1	3
Snipe	15	11	7	19	7	2	2	31½ brace
Jack Snipe	–	3	14	8	1	1	3	15 brace
Total head taken each month	40	207	95	75	80	32	29	558 head for season

II. 1899-1900

Month No. of days	Aug. 5	Sept. 9	Oct. 6	Nov. 5	Dec. 6	Jan. 4	Feb. 5	Totals for 40 days shooting
Partridge	–	168	77	10	10	11	–	138 brace
French Partridge	–	2	2	2	5	–	–	5½ brace
Pheasant	–	–	22	4	1	–	–	13½ brace
Hare	–	23	10	1	–	–	–	34
Rabbit	13	16	26	10	34	19	16	67 couple
Woodcock	–	–	–	–	2	–	–	2
Plover	1	–	4	15	2	–	–	22
Wild Duck	15	4	23	6	21	8	8	42½ brace
Teal	–	–	3	4	–	–	–	3½ brace
Wigeon	–	–	–	–	–	–	1	1
Coot	–	1	–	–	–	–	–	1
Water-hen	15	6	2	8	9	–	3	43
Water-rail	–	–	–	1	2	–	–	3
Snipe	11	5	10	14	8	2	4	27 brace
Jack Snipe	–	1	3	3	1	–	–	4 brace
Dunlin	–	–	–	1	1	–	–	2
Total head taken each month	55	226	182	79	96	40	32	710 head for season

The shooting ledgers for the last two seasons of the nineteenth century contain no real surprises. As can be seen from the following tables, the only duck then visiting the area were surface feeders. Water-meadows with only drains and a few small pieces of open water (except after heavy rain), would be unlikely to attract the diving ducks which are so much a feature of the ings to-day. The relative numbers of Moorhen and Coot are no doubt influenced by the same factors. It was not until after the first World War that permanent open water became extensive (see *The Naturalist*, No. 979, August, 1938).

It is obvious that at some periods, more of the shooting was taking place over arable land, and at others over the water-meadows, and it is, therefore, unwise to make deductions from the tables about seasonal variations in the numbers of any of the species concerned. One is tempted, nevertheless, to make comparison with the present day in the case of the Snipe, for which August and November are often months when the species is really numerous on the reserve. A note in the 1955 report for the area says: '*Ca.* 100 (Snipe) on 2nd and 3rd Aug., and 140 on 7th Aug. indicate an influx augmenting the number of breeding pairs.' In 1957: '*Ca.* 400 on 17th Nov. and 450 on 3rd Dec. . . .' were maximum counts.

Observers who visit Fairburn Ings regularly in winter now, and have seen the vast numbers of Coot, will be interested to learn that only sixty years ago it was far from common in the area.

OPERATION HOMO SAPIENS

Ornithological distinction
Preserves the osprey from extinction;
The walrus, rare in Arctic snows,
Must not be shot by Eskimos.
Kariba dammed Zambesi's flood,
And armies of brave men and good
Worked unremittingly to save
Rare fauna from a watery grave.
I'm waiting for a similar plan
To save that unique species, Man.

CELIA TROTT

(Reproduced by permission of *Punch*).

YORKSHIRE NATURALISTS' UNION EXCURSIONS IN 1960

DRIFFIELD, June 4th-6th

The Whitsun Meeting was well attended and perfect weather conditions added to the enjoyment of the week-end. At the meeting held on the Monday evening sixteen affiliated societies answered the roll-call.

Three types of ground were chosen for investigation—woodland on chalk, open chalk arable and grassland, and marshy ground below the town of Driffield where the canal and Driffield Beck run through pastures which have so far not been drained. Unfortunately it was not possible to get permission to visit more than a small part of the Sledmere woodland and the Saturday afternoon was spent by Gypsy Race at Kirby Grindalythe, one of the few streams in the district. Here intensive cultivation made conditions poor from the naturalists' point of view. The woodland visited in the morning was also rather a disappointment, being largely young coniferous plantation; nevertheless, some interesting records were made.

Sunday was spent on the chalk in the Cowlam-Cottam district. Here the effect of the dry spring was very obvious; grassland was parched and brown. Much of the steep valley sides had been ploughed, a task which was impossible until the coming of the tractor, and while the slopes had been reseeded, some of the level valley bottoms were under arable cultivation. The hawthorn was in magnificent flower both in hedgerows and scattered bushes on unploughed grass slopes.

Monday's excursion was to a very different type of country. Here the dry weather made it easier to get through the rough grassland and marsh between the Driffield Canal and the River Hull, known also as Driffield Beck, which is a typical chalk stream with low banks and very clear water. About half the party walked from Driffield to the lock near the trout farm while the rest worked up from Wansford.

Ornithology (R. Chislett): The wonted dryness of the wolds was accentuated by the drought of the previous fortnight. Corn that now covers much of the former, upland sheep-walk was well advanced.

Of the birds that formerly inhabited the area, Great Bustard, Stone Curlew and Corncrake have vanished. One Corncrake was heard. Partridges of both species were noted. Lapwings and Skylarks and Corn-Buntings were seen every day in smaller numbers than formerly. A Nightjar was found on the road as I. C. Lawrence and his party approached the area from the north-east. It did not seem able to fly.

The large wood to which we were restricted at Sledmere contained much conifer. Wood-Pigeons were numerous. A gibbeted Sparrow-hawk was the only hawk seen. Willow-Warblers and Wrens occurred fairly frequently, and near to the boundary hedges were a few Whitethroats, Bullfinches and more Yellowhammers. A more generally deciduous wood near Tibthorpe added Blackcaps and Turtle Doves. A Woodpecker's hole was reported as holding young birds but from the description they could have been starlings. Game birds did not appear to be very numerous.

The neighbourhood of the Hull river above Wansford showed Reed-Buntings and Yellow Wagtails and Moorhens numerously. Redshank and Snipe and Sedge-Warblers were seen and heard. A Mallard had a brood, and five Mute Swans swam and flew. The Cuckoo was heard infrequently each day. Common Gulls and immature Herring Gulls flew along the river. The Crow family was scarce in all areas except for Rooks and Jackdaws; but a pair of Magpies were nesting.

On the third day we explored wayside woods and hedgerows north-eastward of Driffield without adding to the species seen, except at Burton Agnes, where, on the ornamental pond three Canada Geese swam with a brood of seven goslings, a pair of Little Grebe, some Mallard, a pinioned Sheld-duck, and a few exotic ducks.

Species noted additional to those named above were: Pheasant, Stock-Dove, Swift, Swallow, House-Martin, Sand-Martin (nesting by the river and in a sand quarry), Carrion Crow, Blue and Coal-Tits, Mistle and Song Thrushes and Blackbird, Robin and Hedge-Sparrow, Spotted Flycatcher (one), Meadow and Tree-Pipits, Pied Wagtail, Greenfinch (numerous), Linnet, Chaffinch, and Tree-Sparrow, bringing the total to 54 species.

Mammals noted included Hare, Mole, Rat, and gibbeted Stoats and Grey Squirrels.

The Driffield Beck showed innumerable Brown Trout, a few Grayling and one Eel.

Conchology (Mrs. E. M. Morehouse): Molluscs were few and only common species were seen. The only slug noted was *Milax gagates* Drap. This may have been due to the long dry summer of 1959 and the dry spring this year. At Sledmere only dead shells were seen, these being: *Arianta arbustorum* L., *Helix memoralis* L., *H. hortensis* Müll., *Theba cantiana* Montagu, *Hygromia rufescens* Penn.

At Cowlam a dead shell of *Helicella itala* L. was the only find.

Driffield produced *Helix nemoralis* L., *H. aspersa* Müll., *Theba cantiana* Montagu and *Hygromia rufescens* Penn. Other species noted in the Driffield area included *Ena obscura* Müll., *Vitrea cellaria* Müll., *V. alliaria* Mill., and *Limnaea pereger* Müll.

Lepidoptera (F. Hewson): None of the best East Riding species such as *Agapetes galathea* L. (Marbled White), *Erynnis tages* L. (Dingy Skipper) or *Pyrgus malvae* L. (Grizzled Skipper), were noted (it was, of course, too early in the year for the former), but more species and specimens were seen than in the average Whitsuntide. The three ' White ' butterflies (*Pieris* spp.) were seen in all the localities visited, as also was *Xanthorhoe montanata* Schiff. (Silver-Ground Carpet).

On the Saturday morning at Sledmere, Roger Kitching took a *Coenonympha pamphilus* L. (Small Heath) and a *Euclidimera mi* Clerck (Mother Shipton), whilst Mrs. J. E. Duncan showed us several webs of a species of *Hyponomeutidae* (Small Ermine moths). At Kirby Grindalythe in the afternoon our only additions were the sight of *Aglais urticae* L. (Small Tortoiseshell) and *Dira megera* L. (Wall) butterflies.

Sunday: Langtoft to Cottam. *Euchloe cardamines* L. (Orange Tip), *Coenonympha pamphilus* L. (Small Heath), *Xanthorhoe ferrugata* Clerck (Dark-Barred Twin-Spot Carpet), *Hepialus lupulinus* L. (Common Swift).

Monday: Nafferton to Lowthorpe. Male *Euchloe cardamine* L. (Orange Tip) butterflies were surprisingly common, away from their usual woodland glade habitat, and a number of *Dira megera* L. (Wall) were flying. Larvae of *Abraxas grossulariata* L. (Magpie) were beaten from Sallow, larvae of *Euproctis chrysorrhoes* L. (Yellow Tail) from sallow and crab-apple.

Flowering Plants (W. A. Sledge): The Botanical Section was strongly represented at this meeting and several groups were industrious in filling in record cards. On Saturday Sledmere and Kirby Grindalythe were explored and the following day was spent in examining the dry valleys east and west of the road to the south of Cowlam. The ground covered on both these excursions falls in the same 10 km. square throughout which streams and surface water of any sort are conspicuously absent; indeed this must be the driest 10 km. square in the county, the Gipsy Race at Kirby Grindalythe which was found to be singularly unproductive botanically being the *only* stream present. The whole area consists of dry chalk grassland and arable fields with much woodland about Sledmere Park. Only a small part of the Sledmere woods however were open for inspection by the party and as this part (Hanging Fall Wood) consisted of recent plantation its flora was restricted. *Helleborus viridis* (Green Hellebore) and *Convallaria majalis* (Lily of the Valley) were the best plants found here. Others included *Geum intermedium* (Hybrid Avens), *Euonymus europaeus* (Spindle Tree), *Prunus padus* (Bird Cherry) and *Carpinus betulus* (Hornbeam), the last named (and possibly the last two) being introduced. Elsewhere no ground was found which was even moist enough to yield Angelica or Meadow Sweet and the dryness of the whole area accounted for the very small total of species recorded, two days of diligent searching by several groups yielding under 250 species. The chalk grasslands on the steep flanks of the dry valleys are used for grazing and here in addition to Rock Rose and the typical limestone grasses *Koeleria gracilis*, *Helictotrichen pubescens*, *H. pratensis* and *Brachypodium pinnatum* the following species were noted, most of them in small quantity:

Allium oleraceum L. (Field garlic) (hedgebank near Kirby Grindalythe).
Anthyllis vulneraria L. (Kidney Vetch).
Campanula glomerata L. (Clustered Bell-flower).
Cirsium acaulon (L.) Scop. (Wold Gate) (Stemless Thistle).
Coeloglossum viride (L.) Hartm. (Frog Orchid).
Filipendula vulgaris Moench (Dropwort).
Gentianella amarella (L.) Börn. (Felwort).
Hyoscyamus niger L. (Henbane).
Ophioglossum vulgatum L. (Adder's Tongue).

Orchis morio L. (Green-winged Orchid).
Poa angustifolia L.
Serratula tinctoria L. (Saw-wort).

Weeds of arable fields included:
Anthemis arvensis L. (Corn Chamomile).
A. tinctoria L. (Yellow Chamomile).
Bromus lepidus Holmb.
Fumaria parviflora Lam. (in several places) (Small-flowered Fumitory).
Papaver lecoqii Lamotte. (Lecoq's Poppy).
Scandix pecten-veneris L. (Shepherd's Needle).
Specularia hybrida (L.) A.DC. (Venus Looking-glass).
Torilis nodosa (L.) Gaertn. (Knotted Hedge-parsley).
Valerianella dentata (L.) Poll. (Corn Salad).

Monday's excursion to the marshy ground by the River Hull between Driffield and Wansford provided a flora in marked contrast to that of the preceding days and an equivalent number of species within a much smaller area. The fields between the canal and river are all subject to innudation and some of the ground is permanent marsh with a rich sedge flora, including *Carex diandra*, and several other species of interest. In the river itself near to Driffield *Oenanthe fluviatilis* (new to East Yorkshire) was seen in fair quantity, and the Canal produced three pondweeds, viz. *Potamogeton crispus, P. pectinatus* and *P. densus*, the latter in an exceptionally robust form. *Potamogeton lucens* was seen in the river near Wansford with *Ranunculus pseudo-fluitans*. A cornfield near the starting point yielded *R. arvensis* (Corn Buttercup) and *Papaver lecoqii* (Lecoq's Poppy) and Sweet Briar (*Rosa rubiginosa* L. agg.) not yet in flower was observed on the canal bank. The marsh species included the following:

Alchemilla vestita (Buser) Raunk (Lady's Mantle)
Blysmus compressus (L.) Panz. ex Link
Carex acuta L.
C. acutiformis Ehrh.
C. diandra Schrank
C. disticha Huds.
C. echinata Murr.
C. elata All.
C. hostiana DC.
C. paniculata L.
C. lepidocarpa Tausch
Catabrosa aquatica (L.) Beauv.
Crepis paludosa (L.) Moench (Marsh Hawk's-beard)
Eriophorum angustifolium Honck. (Cotton grass)
Galium uliginosum L. (Marsh Bedstraw)
Glyceria plicata Fr.
Menyanthes trifoliata L. (Bog-bean)
Orchis fuchsii Druce (Spotted Orchid)
O. incarnata L. (Marsh Orchid)
O. fuchsii × *incarnata*
Pedicularis palustris L. (Lousewort)
Pinguicula vulgaris L. (Butterwort)
Potentilla palustris (L.) Scop. (Marsh Cinquefoil)
Rumex hydrolapathum Huds. (Great Water Dock)
Salix pentandra L. (Bay-leaved Willow)
Triglochin palustris L. (Arrow grass)

The sedges included a colony of plants of what appeared to be *C. appropinquata* Schum. and which may well represent the *C. paradoxa* recorded from here in Robinson's *Flora*. But further examination later in the season ruled out this identification and it seems more likely that they are *C. diandra* × *paniculata* hybrids.

BAYSDALE, V.C. 62, June 19th

Attendance at the first meeting to be held on a Sunday was not as good as expected. Difficulties regarding teas and transport are greater than on a weekday, nevertheless about twenty-five members were present representing ten affiliated societies.

The Baysdale valley appears to have been worked very little in the past and few records were available for any section. The remoteness of the upper part of the dale and the absence of any through road held out promise of almost unworked and unknown ground. But the ground was everywhere disappointing botanically. The steep slopes of the dale were largely bracken covered, much of the moor was burnt, and everywhere was much dryer than in a normal June. The main party worked up from the ford at Hob Hole Wath, to Baysdale Abbey, and from there up the Grain Beck for a short way, returning over the top to the ford. The dale is

narrow and steep sided at Hob Hole but widens out at the Abbey where there is a certain amount of cultivation. Here most of the grass is newly sown and even the usual plants of old pasture were absent. The beck is narrow with deep peaty holes. Few fish were seen, and owing to the drought the head of water in the stream was not sufficient to allow anything of any size to survive.

One of the most interesting features of the excursion was finding Juniper with seedlings and young plants in some abundance. The plant is rare in N.E. Yorks., Baysdale being one of the few localities where it occurs.

The hot weather and the hard going made it an exhausting day and less ground was covered than was hoped for, so there is still some interesting looking ground for a future meeting.

At lunch-time some of the party were shown the fine archaeological collection made by Mr. Close of the first farm. The greater part of the finds are from Baysdale or the district around and it seems that this may well be a rich area for future workers. At the farm, too, was seen a three-month-old fox cub rescued from the dale nearby.

Geology and Landforms (C. Simms): Baysdale is peculiar amongst the valleys of North-East Yorkshire because of its anomalous changes in direction and valley form. About Hob Hole Wath the steep valley sides are cut in the Lower ' Estuarine ' series of sandstones and shales and Baysdale Beck flows sluggishly through a narrow braided channel. The more resistant strata give rise to minor waterfalls in the small tributary streams here, which ' hang ' above the valley floor in a manner suggesting that the original channel has been over-deepened. Above the point where Baysdale Beck receives great Mograh Beck from the south is an area of marshy land marking the former site of a temporary lake caused by the damming of the main valley by a landslip. Above this point the valley widens into a basin of farmland pioneered by the Cistercians, because the beck here worked great thicknesses of horizontally-bedded unresistant Alum Shales and the Middle Lias sandstones and shales. Some ironstone seams have been used for smelting and the waste heaps, probably several centuries old, have not all been fully colonised by plants. Most of the solid geology in this area is obscured by terraces, presumably of alluvium, but possibly of till from an early glaciation. Upstream of the Abbey the dales of Black Beck and Grain Beck exhibit the valley-in-valley form of a rejuvenated landscape, the knick point on Grain Beck being a spectacular 15-ft. waterfall in the Alum Shales, which are so well exposed in the gorge and which carry such a rich bryophyte flora. These valleys carry relict woodland of a type probably once widespread in Cleveland, here preserved because sheep cannot graze on the steep walls of these valleys.

Ornithology (R. Chislett): A deep, steep-sided, four-mile-long valley with heather on the tops, mingled with much bracken on the sides and bottom, treed along the main beck and at places along the gills that streak the lower sides of the moors down to the main beck, proved to be more prolific than appeared likely at first glance. At Hob Hole Wath we divided to explore the different types of terrain, up and down and above the beck. Grouse and Curlew occurred sparsely about the upland heather, Meadow-Pipits and Skylarks more plentifully; a Ring-Ousel was seen, and a distant possible Merlin. The lower slopes were better, with Cuckoos, several Wheatears and Whinchats anxious about young in the open; and Willow-Warblers, Whitethroats and surprisingly Yellowhammers about a tributary gill. Common Sandpipers, Grey Wagtails and Redstarts had young near to the beck, where Tree-Pipits sang beautifully. The neighbourhood of the Abbey added Lesser Redpoll and Tree-Sparrow; half an hour in the sloethorn wood added a pair with flying young, of Wood-Warblers, and several singing Robins, Wrens and Song-Thrushes which had been scarce elsewhere, and more Redstarts.

Lapwings and Snipe were scarcer than could have been expected. Tit-mice were only represented by one Blue-Tit. Other species identified by several people brought the list to 47, including Mallard, Partridge, Pheasant, Moorhen, Stock and Ring-Doves, Green and Great-Spotted Woodpeckers, Swift and Hirundines, Blackbird, Hedge-Sparrow, Spotted Flycatcher, Pied Wagtail, Starling, Greenfinch, Chaffinch (plentiful), Reed-Bunting, Carrion Crow, Rook, and Magpie.

Lepidoptera (W. J. V. Ward): The lepidoptera taken were all common species. Small Heath butterflies were abundant, as were the Silverground Carpet moth, a colony of Common Blues was on the fertile ground near the farm, a male Orange Tip was seen flying across a wide stretch of open moor, an odd place for it, and a few

Cream Wave moths, Green Carpets, and Grey Mountain Carpets were seen. Other species noted include Chimney Sweeper, Gold Swift and larvae of Northern Eggar.

Flowering Plants (Miss D. Walker): It seemed obvious to the botanists that the paucity of records in the Baysdale area could well be due to the restricted type of habitat, rather than the failure of local botanists to work the area.

From the start at the meeting place at Hob Hole Wath the greater part of the ground was heather moor. The small cultivated area around Baysdale Abbey seemed to consist almost entirely of reseeded grass and even the more common weeds of permanent pasture were not noted. The heather moor was mainly very dry; quite extensive burning had taken place and some parts of the 'tops' were bare of vegetation. The peat cover, never very thick, was being blown away on the burned areas and it will be interesting to see what the final cover will be.

The steep slopes of the upper part of Grain Beck Valley were thickly covered with bracken and the total of 147 plants recorded was all one could expect for so restricted a type of country.

The Beck around Hob Hole Wath is so disturbed by picnic parties and bathers that little is able to grow on its banks. Higher up bracken covers almost the whole of the sides of the valley. *Trientalis europaea* was plentiful up to where the bracken ran out at the edge of the moor. One bog full of *Narthecium ossifragum* (Bog Asphodel) was seen, *Corydalis claviculata* (Climbing Corydalis) was found in two places and *Thelypteris dryopteris* (Oak Fern) was also found. *Carex echinata* was very abundant, but very few other Carices were seen. Juniper was in several places and in Grain Beck Dale a number of seedlings were noted. *Epilobium nerterioides* was by the side of the road down to Hob Hole Wath and also further up Baysdale. Rather surprisingly, *Chrysosplenium oppositifolium* (Opposite-leaved Golden Saxifrage) was in full flower by a spring on a north facing cliff.

Bryology (G. A. Shaw): At first sight the upper part of Baysdale, above Hob Hole Wath, did not look too promising bryologically. However, closer acquaintance proved that there were some interesting habitats to be examined. The frequent flushes proved rewarding, and here we had *Riccardia pinguis, Pellia epiphylla, Philonotis fontana, Bryum pseudotriquetrum, Philonotis fontana* and *Acrocladium cuspidatum*. There was nothing to indicate any approach to more neutral conditions, no *Cratoneuron commutatum* for example which was found in some of the flushes in the upper part of the Washburn earlier in the year.

Tetraphis pellucida was in fruit on an old stump, and on the under surface of a large rock we had *T. browniana*. A striking and unusual feature of the vertical banks of the stream was the abundance of *Oligotrichum hercynicum*, often growing with *Polytrichum aloides*.

Species seen during the day were:

Atrichum undulatum (Hedw.) P. Beauv.
Oligotrichum hercynicum (Hedw.) Lam. & DC.
Polytrichum aloides Hedw.
P. commune Hedw.
Ceratodon purpureus (Hedw.) Brid.
Dicranella squarrosa (Starke) Schp.
D. cerviculata (Hedw.) Schp. *c. fr.*
D. heteromalla (Hedw.) Schp.
Dicranum scoparium Hedw.
Tetraphis pellucida Hedw. *c. fr.*
T. browniana (Dicks.) Grev.
Orthodontium lineare Schwaegr.
Pohlia nutans (Hedw.) Lindb.
Bryum pseudotriquetrum (Hedw.) Schwaegr.
Mnium hornum Hedw.
M. punctatum Hedw.
Aulacomnium palustre (Hedw.) Schwaegr.
Philonotis fontana (Hedw.) Brid. *c. fr.*
Hookeria lucens (Hedw.) Sm.
Thuidium tamariscinum (Hedw.) B. & S.
Drepanocladus exannulatus (B. & S.) Warnst.
Acrocladium cuspidatum (Hedw.) Lindb.
Eurhynchium praelongum (Hedw.) Hobk.
Isopterygium elegans (Hook.) Lindb.
Plagiothecium undulatum (Hedw.) B. & S.
Hyocomium flagellare B. & S.
Riccardia sinuata (Dicks.) Trev.
R. pinguis (L.) S. F. Gray
Pellia epiphylla (L.) Corda
Calypogeia trichomanis (L.) Corda emend. Buch
Gymnocolea inflata (Huds.) Dum.
Solenostoma sphaerocarpum (Hook.) Steph.
Nardia compressa (Hook.) S. F. Gray
Lophocolea bidentata (L.) Dum.
Cephalozia bicuspidata (L.) Dum.
Diplophyllum albicans (L.) Dum.
Scapania undulata (L.) Dum.

GARGRAVE, V.C. 63, July 2nd-3rd

The 572nd meeting was held at Gargrave on Saturday and Sunday, July 2nd and 3rd and a very happy and pleasant occasion it proved to be. Between twenty and thirty members were present from an area between Doncaster and Middlesbrough and it was gratifying to see so many young people.

We were fortunate in having the willing assistance of Mr. and Mrs. R. L. Illingworth of Skipton, whose local knowledge made them ideal leaders for the two excursions. On Saturday the old road, known as ' Grannies Lane ' was followed to Bell Busk then a field path to Coniston Hall. Through the kindness of Mr. R. Tottie a break was made for lunch on the terrace which overlooks the lake; afterwards the surrounds of the lake were explored.

Leaving Gargrave on Sunday the Pennine Way was followed through the fields until the Leeds and Liverpool Canal was reached. The return journey on the bank to Bank Newton allowed the botanists to record many waterside plants.

After tea on Sunday a short meeting was held at headquarters. Mr. R. Chislett presided and thirteen Societies were represented. Votes of thanks were moved to Mr. R. Tottie, the Skipton Naturalists and the Divisional Secretary for the help they had given.

Ornithology (R. Chislett): The country to Bell Busk and Coniston Lake and woods, and along the Aire south-east from Gargrave, showed a good variety of species totalling, with the aid of brief visits to woods near Skipton and to Elslack Moor, to 65. The river was low after the protracted drought and the ground dry everywhere. Bird song was ceasing or some species might have appeared more numerous and a few more have been added. Most young Lapwings were on the wing; one flock numbered *ca.* 100. Curlews were numerous, including some with running young (one ringed), and a flock of *ca.* 40 rose from a hillside. By the river were old and young Redshanks, Common Sandpipers, Oystercatchers, adult and young Wheatears, Pied and Yellow Wagtails (nest found with small young), and Reed-Buntings. Warblers were scarce except for Willow-Warblers (nest with young), but included a Chiffchaff and Blackcap. The Coniston Lake added Great Crested Grebe (with chick), Little Grebe, *ca.* 300 Mallard, Tufted Ducks, Pochard, Coot and Moorhen; and two Black Swans (*ex* Australia *via* Bradford). Brief visits to areas near Skipton and to Elslack Moor added Little Owl, Dipper, Grey Wagtail, Mistle-Thrush, Goldcrest, Redpoll, Meadow-Pipit and Red Grouse. Other species noted were: Mute Swan, Kestrel, Partridge, Pheasant, Black-headed and Lesser Black-backed Gulls, a ' commic ' Tern, Stockdove and Wood-Pigeon, Swift, all three Hirundines, Cuckoo (scarce), Carrion Crow, Rook, Jackdaw and Magpie; Great, Blue and Coal-Tits; Tree-Creeper, Wren, Song-Thrush and Blackbird, Redstart, Robin, Spotted Flycatcher, Tree-Pipit, Starling, Linnet, Redpoll, Goldfinch, Bullfinch, Chaffinch, Yellowhammer, House and Tree-Sparrows.

Additional Records by R. S. Atkinson.

Two hares were seen and a few rabbits. The grey squirrel was seen in the grounds of Coniston Hall. In the grounds of Coniston Hall were also large numbers of tiny frogs, little more than three-eighths of an inch long, together with toads.

Because of the rather dull weather the only lepidoptera seen were the Small Tortoiseshell, Common Blue, and Meadow Brown butterflies, the Yellow Underwing and Chimney Sweep moths.

The Common Blue Damsel Fly was seen at Coniston.

Flowering Plants (Miss R. Kilby): The walk to Bell Busk on Saturday produced a number of the common limestone species and the lake at Coniston Cold yielded White and Yellow Water Lily, Great Reed Mace, Bur-Reed, Fly Honeysuckle, *Berberis*, *Carex spicata* Huds., *C. hirta* L., *C. sylvatica* Huds., and *C. acutiformis* Ehrh.

On Sunday the canal was investigated and the plants seen included Water Plantain, Flowering Rush, Canadian Pondweed, Amphibious Bistort, Burnet Saxifrage, *Potentilla norvegica* L., *Potamogeton perfoliatus* L., *P. pectinatus* L. and *P. densus* L.

On both days much *Scrophularia umbrosa* Dum. was seen by streams. It was more frequent than *S. nodosa* L. while *S. aquatica* L. was not seen during the weekend.

GREAT LANGTON and KIPLIN, V.C. 65, July 16th

Transport difficulties had little effect on the attendance at this meeting. Over forty members and associates were present at the routine meeting following tea. Nine affiliated societies answered the roll-call. Darlington Field Club was strongly represented, a private coach being chartered for the occasion.

The ground investigated was interesting; in particular the large area of gravel which extends along both banks of the Swale from near Catterick Bridge to well below Langton. The river here is winding, always inclined to flood, and rapid, the main stream changing from side to side several times in a year. Much work has been done in recent years to try and confine the flooding to as small an area as possible and for this much of the gravel has been worked leaving large areas of open shingle. Where the gravel has been undisturbed for any length of time willows have colonised and the north bank near Kiplin and North Ellerton is a dense willow thicket.

The lake in Kiplin Park is silted up and very overgrown; the wet ground which was extensive fifty years ago has been drained and much of the parkland is now arable or new ' ley '.

Unfortunately no representative from the Entomological Section was present. The ground appeared to have a good insect fauna, especially on the rather more open gravel beds. Small Tortoiseshell butterflies were very plentiful and there appeared to be a goodly lot of Lepidoptera.

Tea and the meeting that followed were at Kiplin Hall by invitation of Miss Talbot. After the official excursion was over the Hall and its pictures were shown to members. Miss Talbot and the other landowners were thanked at the meeting a special vote of thanks to Miss Talbot being moved by Mr. Chislett, who presided.

Ornithology (R. Chislett): Leisurely rambles by the Swale in both directions produced a list of fifty species despite the late date. Herons have not bred at Kiplin for some years but at least three were seen. A hen Sparrow-Hawk carried small prey past us across a field to a pine on the edge of a wood, and made a meal as we lunched. Waders included Oystercatchers with young able to fly, Lapwings in a flock of *ca.* 60, a number of Common Sandpipers, two Green Sandpipers and two Greenshanks as early passage-migrants through this country. Three large Terns flew westward up-river and were probably Sandwich. Some Wood-pigeons still had eggs; a Kingfisher was seen by several people, and a Nuthatch was noted (it also breeds in old timber in upper Teesdale). Mistle-Thrushes fed on the abundant fruit of a group of wild cherry-trees. Warblers were quiet but Sedge-Warbler, Whitethroat, Willow-Warbler and Chiffchaff were noted, and a brood of Spotted Flycatchers. Pied Wagtails had flying young, and the Grey Wagtail was seen, but the Yellow evaded our notice although known to have been there a month earlier. Reed Buntings were fairly numerous.

Other species recorded were: Mallard, Kestrel, Partridge, Pheasant, Moorhen, Black-headed, Herring and Lesser Black-backed Gulls, Swift, Skylark, Swallow, House and Sand-Martin (the last-named breeding in the river banks), Carrion Crow, Rook, Jackdaw and Magpie, Great, Blue and Coal-Tits, Tree-Creeper, Wren, Song-Thrush, Blackbird, Greenfinch, Linnet, Bullfinch, Chaffinch and Yellowhammer. A month earlier several other species would have been added, and at least three omitted.

Mammals were scarce, only hare and rabbit being noticed.

Flowering Plants (C. M. Rob): The land on both banks of the Swale was well worth visiting. In the morning the Kirby Fleetham side as far as the track from the village was examined, and some interesting records were made. Kiplin Park and the Lake proved disappointing and the party moved quickly to the river where the ground cover was largely willow scrub, in contrast to the open gravel banks of the morning. Both sides had a large number of garden escapes, many of them plants not often seen even as cultivated species. *Gunnera* sp. and a dark pink *Sidalcea* were well established, Opium poppies (*Papaver somniferum* L.) were abundant on the open shingle, both the pale lavender form and the dark red generally seen in gardens. A single plant of *Anthemis tinctoria* L. (Yellow Chamomile) was found near the large patch of poppy (*Papaver lateritium* C. Khoc) mentioned in the circular. Here the

gravel is being removed for repairing the bank lower down and much of the good ground had been disturbed.

St. John's Wort was plentiful and was almost all *Hypericum maculatum* Crantz, an uncommon plant throughout the county. The other outstanding find of the day was *Chenopodium glaucum* L. (Oak-leaved Goosefoot) by a pond at North Ellerton. More than 250 plants were noted on the mapping cards, 16 being added to the master card, making the total for the 10 km. square 436.

Other species of interest seen included:

Allium vineale L. (Crow garlic)
A. oleraceum L. (Field garlic)
A. scorodoprasum L. (Sand Leek)
Echium vulgare L. (Vipers Bugloss)
Fumaria purpurea Pugsl. (Purple Fumitory)
Lilium martagon L. (Martagon Lily)
Rumex longifolius DC. (Grainless Dock)
Salix pentandra L. (Bay Willow)
Saponaria officinalis L. (Soapwort)
Stellaria nemorum L. (Wood Stitchwort)

FAIRBURN, V.C. 64, August 13th

Attendance at this excursion was well above average; more than sixty people were present at the meeting held after tea. Fifteen affiliated societies answered the roll-call, including the Todmorden Club, which is the Union's most recently joined Field Club. The weather, which looked far from promising early in the day, held up until after the outdoor work had been finished. Mrs. Duncan, the new Divisional Secretary, helped by the Rev. P. M. Garnett, who acted as Local Secretary, had taken a great deal of trouble to see nothing went wrong and the meeting was successful in every way.

The first part of the day was spent by the Fairburn Cut. This was so interesting that the party was only able to get as far as the river banks and back before lunch, after which the main party went by car to a disused quarry on the Castleford road. Here considerable burning had occurred and some refuse tipped, but there were some limestone plants to interest the botanists though other sections found conditions too dry. The rest of the time was spent in the wet grassland near the old Abbey of Newton. Only a small part of the ings was visited and many more visits will have to be made before the whole area is worked. As the present state of this area is of such recent origin there seems little doubt that many interesting botanical and entomological records will be made from Fairburn in future years.

One of the most satisfactory features of this meeting was the better sectional representation. Past meetings in 1960 have had poor support from the entomologists and mycologists and reports in consequence have not done full justice to the areas visited.

Vertebrate Zoology (Donald F. Walker): If there was a shortage of ornithologists on the Fairburn excursion, the same could not be said of the waterfowl. We anticipated large numbers of Mute Swans and several counts indicated between 180 and 200 birds. At least three pairs had cygnets but there were probably many more. Of special interest was the Bewick's Swan which has remained at Fairburn since last winter. Besides the large number of Coot, other birds on the water included Mallard, Teal, at least six Shoveler, several pairs of Tufted Duck with young, Great Crested and Little Grebe. No young were noted with the Great Crested Grebes.

In the reeds both Sedge and Reed Warblers were skulking. It was not possible to estimate their relative numbers. We saw several Reed Buntings during the day but in view of his name of ' Pit Sparrow ' we expected larger numbers. On the slag-heaps one of the commonest birds was the Yellow Wagtail, one party numbering twenty birds. The Pied Wagtail was also plentiful and a single Grey was seen. Sand-Martins were very numerous and House-Martins and Swallows less so. Few Swifts were seen until evening, when at least 80 birds flew due west over the village at 5 p.m. A young Cuckoo was being fed at the side of the ing by a Meadow Pipit.

On the lagoons several interesting waders were seen including six Little Ringed Plovers, one Ringed Plover, four Greenshanks, two Green Sandpipers, nine Common Sandpipers, one Ruff, one Redshank, several Snipe and Dunlin. On the main road six Wheatears were seen and it appeared as though they were on passage. Near the

village Yellow Bunting, Spotted Flycatcher, Whitethroat, Willow-Warbler, Linnet and Greenfinch were 'ticked off' and these, together with a few other common birds, brought the number of species seen up to 53.

The only mammals seen were Brown Rat, Water Vole, Rabbit and Hare. A fisherman at the side of the ings told us that a few minutes before our arrival, a large Pike had sucked a young Coot underneath the water.

Conchology (S. G. Appleyard): The following species were present: *Bithynia tentaculata* (L.), *Planorbis carinatus* Müller, *P. corneus* (L.), *P. spirorbis* (L.), *P. vortex* (L.), *Limnaea stagnalis* (L.), *Anodonta cygnea* (L.), *Sphaerium corneum* (L.). An unoccupied caddis case consisted of the shell of *Planorbis vortex* and 13 opercula of *Bithynia tentaculata.*

Entomology (H. M. Russell): Generally speaking, insects were scarce. The overcast sky, which contained more than a hint of the rain which was to fall later in the day, inhibited flight in the Diptera, and the major part of my collections was taken by beating rather than by the more normal sweeping techniques. Among the Diptera the Reed-borer *Ceroxys crassipennis* was fairly common. The rest of the Diptera are quite what one would expect from the area under investigation. The only outstanding insect taken during the day was *Impatientinum balsamines*, an aphid specific to *Impatiens glandulifera*. This is the second record of the species in Yorkshire.

The following is the list of insects taken:

DIPTERA

Tipula oleracea L.
Prionocera turcica Fab.
Ptychoptera contaminata L.
Beris vallata Forst.
Leptis scolopacea L.
Dioctria rufipes Deg.
Dolichopus plumipes Scop.
D. pennatus Mg.
Syntormon pumilus Mg.
Xiphandrium caliginosum Ztt.
Platychirus manicatus Mg.
Chilosia variabilis Pz.
Ascia podagrica F.
Eristalis sepulchralis L.
E. tenax L.
E. arbustorum L.
Helophilus pendulus L.
H. lineatus Fab.
Lonchoptera lutea Pz.
Ceroxys crassipennis F.
Neuroctena anilis Fln.
Loxocera aristata Pz.
Psila nigricornis Mg.
Sepsis cynipsea L.
Tetanocera elata Fab.
Opomyza germinationis L.
Geomyza combinata L.
Notiphila uliginosa Hal.
Liriomyza flaveola Fln.
L. strigata Mg.
Phytomyza atricornis Mg.
P. nigra Mg.
Lucilia caesar L.
Graphomyia maculata Scop.

ODONATA

Aeshna grandis L.
A. juncea L.

HEMIPTERA—APHIDOIDEA

Impatientinum balsamines Klt.
Drepanosiphum platanoides Schr.

Lepidoptera (Joyce Payne): The Wall, *Dira megera* (L.) was the butterfly most in evidence. It was seen flying at Fairburn Ings, Newton Ings, and in the quarry. It was the only member of the 'Browns' reported. Of the Nymphalidae, the Red Admiral, Small Tortoiseshell and Peacock were seen but none of them appeared to be plentiful. *Lycaena phlaeas* (L.), the Small Copper, was frequent on the ings and all three Whites were present.

On three moths were seen or reported: the Common Carpet (*Epirrhoe alternata* (Mueller)), the Blood Vein (*Calothysanis amata* (L.)), and the Mother of Pearl (*Notarcha ruralis* (Scop.)). Larvae of the Cinnabar (*Hypocrita jacobaeae* (L.)) were seen on ragwort and Drinker larvae (*Philudoria potataria* (L.)) were found on the ings. A gregarious group of caterpillars found on rose in the quarry were thought to be the larvae of the Buff Tip (*Phalera bucephala* (L.)).

Flowering Plants (C. M. Rob): Fairburn Ings was pasture and arable land within living memory, and the vegetation of a great part of the area has arrived in recent

years. Only a small part of the Nature Reserve was examined, but the result is of considerable interest and more detailed examination will no doubt add many species to the list. Two previous visits had given a total of 147 species for the ings and roadside verges near by. The present total is 247. There is no doubt this is far lower than it should be and more work in this area is necessary.

While the main task of the botanists was to see just what plants had come to the ings in the past twenty-five to thirty years, the absence of certain species was one of the most noticeable features of the meeting. *Phragmites communis* Trin. (Reed Grass) is so far only to be found on the top of the very dry slag bank between the Flash and the river. *Hydrocotyle vulgaris* L. (Marsh Pennywort) was not seen in any of the areas visited and other plants usually found in such habitats failed to turn up.

The most interesting finds of the day were *Rumex maritimus* L. (Golden Dock) and *R. palustris* Sm. (Yellow Marsh Dock) which were abundant on both sides of the ' Cut ' and by the shore of the ' Flash '. 1960 seems to be a particularly good year for the former for it is plentiful in several other stations, particularly in the North Riding. It has long been known as a most erratic plant, abundant one year and then for several years there is no sign even of a seedling. Its occurrence at Fairburn gives local botanists a chance of working on the factors controlling its germination and distribution.

The extensive beds of *Typha latifolia* L. (Reed Mace or False Bulrush) are a conspicuous feature of the ' Flash '. Very large areas of the open water are becoming colonised by this plant which is perhaps the commonest species in this part. Another very common plant is *Ranunculus sceleratus* L. which covers large areas of the shallower parts of the shore, while *Chenopodium rubrum* L. (Red Goosefoot), *Lysimachia nummularia* L. (Creeping Jenny), *Lycopus europaeus* L. (Gipsywort), *Myosoton aquaticum* (L.) Moench. (Water Chickweed), *Ceratophyllum demersum* L. (Honewort), and *Potamogeton berchtoldii* Fieb. (Slender Pondweed) were fairly common.

The disused limestone quarry was not rich in species, and the recent burning and tipping of rubbish did not add to the enjoyment of its exploration. Nevertheless, *Erigeron acer* L. (Blue Fleabane), *Inula conyza* DC. (Ploughman's Spikenard), *Nepeta cataria* L. (Wild Catmint), *Poa compressa* L. (Wall Meadow Grass) and *Melilotus altissima* Thuill. (Golden Melilot) were species that more than compensated for the smells.

Near the site of Newton Abbey the wet grassland was not rich in species: *Juncus effusus* L. (Common Rush) was the most widespread plant, with *Veronica catenata* Pennell and *Sparganium erectum* L. (Bur-Reed) in some quantity.

On the dry bank near the old cottage *Salvia horminoides* Pourr. was plentiful, both *Calystegias* were noted and *Myrrhis odorata* (L.) Scop. (Sweet Cicely), *Centaurea scabiosa* L. (Greater Knapweed) and *Saponaria officinalis* L. (Soapwort). Other species noted in the course of the day included *Ranunculus trichophyllus* Chaix., *Anthyllis vulneraria* L. (Kidney Vetch), *Hippuris vulgaris* L. (Mare's-tail), *Bidens tripartita* L. (Bur-Marigold), *B. cernua* L. (Nodding Bur-Marigold), *Blackstonia perfoliata* (L.) Huds. (Yellow-wort), *Allium oleraceum* L. (Field Garlic) and *Acorus calamus* L. (Sweet Flag).

JOINT MEETING OF THE YORKSHIRE NATURALISTS' UNION AND THE BOTANICAL SOCIETY OF THE BRITISH ISLES

BARNARD CASTLE, August 27th-28th, 1960

This joint meeting of the B.S.B.I. and the Botanical Section of the Y.N.U. was held to investigate the Stainmoor area. Records from this large moorland district are scanty and it was hoped the ground would be interesting. Unfortunately the late date was unavoidable and had it been possible to have the meeting a month earlier more plants would have rewarded those who attended. In all about twenty members were present on one or both days. The weather was fairly good, though rain and low cloud prevented a very thorough examination of Shacklesborough Moss, and none of the rarer plants were seen.

Saturday's excursion was to Deepdale, which is on the Millstone grit and here *Calluna* was in perfect condition. Other plants noted were *Empetrum nigrum* L.

(Crowberry), *Rumex tenuifolius* (Wallr.) Löve, *Viola lutea* L. (Mountain Pansy), *Vaccinium oxycoccos* L. (Cranberry). From Deepdale the Pennine Way was followed to the Greta Valley where limestone occurs, and then down the railway and river bank to Bowes. The hybrid Woundwort *Stachys ambigua* Sm. was near the car park at Bowes. *Rumex longifolius* DC., both *Geranium pratense* and *G. sylvaticum* L., *Mentha rotundifolia* (L.) Huds. (Round-leaved Mint), *Selaginella selaginoides* (L.) Link. and *Carduus acanthoides* L., the latter at 1,028 ft., were amongst the species noted. A few small plants of Parsley Fern, *Cryptogramma crispa* (L.) R.Br. ex Hook. were seen amongst stones by the railway about a mile west of Bowes. Although plentiful on the Teesdale basalt it is rare elsewhere in V.C. 65. *Myosotis brevifolia* C. E. Salmon. was seen in small quantity both in Deepdale and Baldersdale.

The visit to the well-known station for *Saxifraga hirculus* L. proved disappointing. In spite of hard searching no flower or fruit was seen, though there were six flowers there the week previous. At Shacklesborough Moss a search was made for *Carex limosa* L. recorded on Stainmoor by Wm. Foggitt more than fifty years ago. Some promising ground was seen but no sedges.

BRYOLOGICAL MEETING—WEST END, WASHBURNDALE (V.C. 64) April 9th, 1960

F. E. BRANSON

The weather was most favourable—rain during the first part of the morning, but bright sunshine by the time we arrived at West End for the investigation of the bryophytes in the Washburn valley. It is unfortunate that this delectable little valley will eventually be submerged when the scheme for a new reservoir is put into practice.

Several very interesting species were found in the course of the day, the rarest being *Philonotis caespitosa*. This has only been previously recorded in two other locations in V.C.64. Of the two species of *Fissidens* seen, by far the most plentiful was *Fissidens osmundoides* growing in reach of the spray from tiny waterfalls tumbling over the high banks at the side of the valley. This is the first record of this moss for Wharfedale. The other one, *F. adianthoides* in the same situation was in much smaller quantity. *Riccardia sinuata* was in quantity under the spray, and a small amount of *Hookeria lucens* was seen. *Brachythecium populeum* was collected from decaying bark, an unusual habitat as this species is commonly found on rocks, sandy ground, walls etc.

In the afternoon we visited Duck Street limestone quarry at Greenhow Hill. Nothing exceptional was discovered here, but *Tortella tortuosa*, *Orthotrichum anomalum*, *Bryum argenteum* and *Campylium stellatum* were in evidence. On the rocks were quantities of *Grimmia apocarpa* making a nice show with its attractive red capsules, and *G. pulvinata*.

The following species were seen:

West End

Atrichum undulatum (Hedw.) P. Beauv.
Polytrichum aloides Hedw. *c.fr.*
P. commune Hedw.
Fissidens osmundoides Hedw.
F. adianthoides Hedw.
Ceratodon purpureus (Hedw.) Brid.
Dicranella heteromalla (Hedw.) Schp.
Dichodontium pellucidum (Hedw.) Schp.
Dicranoweissia cirrata (Hedw.) Lindb. *c.fr.*
Dicranam scoparium Hedw.
Tortula muralis Hedw. *c.fr.*
Pohlia albicans (Wahl.) Lindb.
Bryum pseudotriquetrum (Hedw.) Schwaegr.
Mnium hornum Hedw. *c.fr.*
M. undulatum Hedw.
M. punctatum Hedw.
Philonotis caespitosa Wils. ex Milde (det. E. V. Watson)
Fontinalis antipyretica Hedw.
Hookeria lucens (Hedw.) Sm. *c.fr.*
Thuidium tamariscinum (Hedw.) B. & S.
Cratoneuron commutatum (Hedw.) Roth.
C. commutatum (Hedw.) Roth. var. *falcatum* (Brid.) Moenk.
Acrocladium cuspidatum (Hedw.) Lindb.
Camptothecium sericeum (Hedw.) Kindb.
Brachythecium rutabulum (Hedw.) B. & S.
B. rivulare (Bruch) B. & S.
B. populeum (Hedw.) B. & S.
Eurhynchium praelongum (Hedw.) Hobk.
E. riparioides (Hedw.) Jennings
Pseudoscleropodium purum (Hedw.) Fleisch
Pleurozium schreberi (Brid.) Mitt.
Isopterygium elegans (Hook.) Lindb.

West End (*continued*)

Plagiothecium denticulatum (Hedw.) B. & S.
Hypnum cupressiforme Hedw.
Rhytidiadelphus squarrosus (Hedw.) Warnst.

HEPATICS

Conocephalum conicum (L) Dum.
Riccardia sinuata (Dicks.) Trev. (conft. Mrs. J. A. Paton)
Pellia epiphylla (L.) Corda
Lepidozia reptans (L.) Dum.
Barbilophozia floerkei (Web. & Mohr.) Loeske
Solenostoma triste (Nees) K. Mull. (=*Aplozia riparia* (Tayl.) Dum.))
Lophocolea bidentata (L.) Dum.
Diplophyllum albicans (L.) Dum.
Scapania undulata (L.) Dum.

Duck Street Quarry, Greenhow Hill.

Encalypta streptocarpa Hedw.
Tortella tortuosa (Hedw.) Limpr.
Weissia microstoma (Hedw.) C.M. *c.fr.*
Grimmia apocarpa Hedw. *c.fr.*
G. pulvinata (Hedw.) Sm. *c.fr.*
Bryum pallens (Brid.) Rohl
B. argenteum Hedw.
B. capillare Hedw. *c.fr.*
Campylium stellatum (Hedw.) Lange & C. Jens.
Ctenidium molluscum (Schp.) Mitt.

AUTUMN FORAY AT THORNTON DALE
September 12th to 14th, 1959

W. G. BRAMLEY

As the weeks went by and no rain fell the writer, living in the district, felt that the Autumn Foray would be a failure. However, by hard and intensive searching of the few damp spots that could be found the fourteen members and friends managed finally to compile a fairly respectable list. There is no doubt that amongst the agarics this result was mainly due to the efforts of Mr. Orton, ably assisted by Dr. Hincks and Messrs. Collinge and Watling.

At Castle Howard the lake was at a very low level and areas of sandy mud lined the south shore. The reed beds which are usually so swampy as to be difficult of ingress proved not too bad going and a number of marsh-loving small agarics were obtained. The dry park land and avenues were unproductive so after lunch it was decided to see if Kirkham would be any better, but all in vain. However a few more of the discomycetes and pyrenomycetes were found here.

The following day at Ellerburn conditions were no better. The alder swamps here could have been visited in the lightest of footwear. Two or three spring flushes yielded a number of Galerinas and Mycenas, but these were in no quantity.

The same story continued at Kingthorpe and it was only by concentrating on the stream side that any agarics could be found. Here a couple of specimens were found which Mr. Orton thinks may be new and a special search will no doubt be made for them in the coming autumn.

Throughout the foray only a dozen discomycetes were listed, a very low number. *Karschia cratincola* has rarely been recorded, whilst *Pachyella babingtonii* under its many synonyms is probably commoner than its records suggest. Generally found on submerged branches it hardly looks like a fungus. *Orbillia sarraziniana* is not included in the last British list of Discomycetes but Mr. Graddon writes that it is probably not uncommon. Its chief distinguishing feature is the acute ended fusiform spores with what looks like a bubble in the middle measuring 6-8 × 1μ. The pyrenomycetes were not much more numerous with nothing of outstanding interest. Erysiphales were noticeable on several plants especially crops of swede and turnips.

At Kingthorpe an abundance of *Puccinia graminis* on *Deschampsia* was noted in the uredospore stage and a later visit produced teleutospores. Only one hyphomycete appears to have been collected,

†Not in Mason & Grainger's *Catalogue of Yorkshire Fungi*.
*=Not in Mason & Grainger's *Catalogue of Yorkshire Fungi* for V.C. 62.
C=Castle Howard. E=Ellerburn. K=Kingthorpe.

ERYSIPHALES

†*Sphaerotheca fuliginea* Salmon, on *Taraxacum*, C, K

DISCOMYCETES

Helotium laetum (Boud.) Sacc., K.
**H. salicellum* (Hazsl.) Fr., K.
†*Karschia cratincola* Rehm, on wood, K.
†*Neobulgaria pura* (Pers. ex Fr.) Petrak
†*Orbillia sarraziniana* Boud., E.
Pachyella babingtonii Boud., E.
Pulvinula constellatio (B. & Br.) Boud.
Scutellinia setosa (Nees) Boud., E.

HYSTERIALES

Gloniopsis levantica Rehm (=*Hysteriographium curvatum*), K.

PYRENOMYCETES

**Cordyceps forquignoni* Quél., on flies, C.

AGARICALES. Authors according to Orton, New Check List, *Trans. B.M.S.*, 1960.

†*Conocybe filaris* (Fr.) Kühn., E.
†*C. mairei* Kühn., K.
†*Coprinus tigrinellus* Boud., C.
Cortinarius helvelloides (Fr.) Fr., E.
†*C. pulchellus* J. Lange, E.
†*Crepidotus amygdalosporus* Kühn., E.
†*Galerina clavata* (Vel.) Kühn., E.
†*G. mutabilis* (Schaeff. ex Fr.) P. D. Orton, E.
†*Hebeloma pusillum* J. Lange, C.
†*H. saccariolens* Quél., E.
†*Inocybe eutheles* (Berk. & Br.) Quél., E.
†*Lactarius cyathula* (Fr.) Fr., C, K.
†*L. lilacinus* (Lasch) Fr., E.
†*L. obscuratus* (Lasch) Fr., K.
†*Marasmius calopus* (Pers. ex Fr.) Fr., E.
†*Mycena bulbosa* (Cejp.) Kühn., C.
†*M. fibula* (Bull. ex Fr.) Kühn., K.
†*M. margaritispora* J. Lange, K.
†*M. pudica* Hora, C.
**M. speirea* (Fr. ex Fr.) Gillet, C, E, K.
†*M. swartzii* (Fr. ex Fr.) A. H. Smith, E.
†*Naucoria celluloderma* P. D. Orton, K.
†*N. luteolofibrillosa* (Kühn.) Kühn. & Romagn., E, K.
†*N. striatula* P. D. Orton, E, K.
†*N. subconspersa* Kühn. ex P. D. Orton, C, E, K.
†*Russula queletii* Fr., E.

APHYLLOPHORALES

†*Polyporus fragilis* Fr., on *Salix*, C.
†*P. hymatodes* Fr. } (both *certe* P. Austwick).

FIELD NOTE

***Hylecoetus dermestoides* (L.), an uncommon beetle at Helmsley.**—On March 16th, 1960, while stripping bark from the stump of a felled oak in Duncombe Park, Helmsley, I came across two larvae of *Hylecoetus dermestoides* (L.) tunnelling into the very hard wood of the stump. The larvae are of a curious and characteristic form with a greatly enlarged prothoracic segment and a long spine-like process on the apical abdominal segment and have been reported to feed on a fungus which grows in their burrows. Using a chisel, I broke off a piece of the wood and at home confined the larvae between the wood and a strip of bark held in place by rubber bands, the whole sealed in a bottling jar. One larva died, the other pupated and the adult emerged on April 5th.

The beetle is decidedly uncommon in Britain and only two specimens have been reported in Yorkshire previously, both taken by Mr. G. B. Walsh, one at Helmsley in May 1937 and another in Bilsdale.—J. H. FLINT.

BOOK REVIEWS

Flora of the British Isles, Illustrations, Part 2. Drawings by **Sybil J. Roles.** Pp. vi + 120. Cambridge University Press. 25/-.

The second volume of this companion to Clapham, Tutin and Warburg's *Flora* contains 460 drawings covering the families Rosaceae to Polemoniaceae. Apart from its object of supplying illustrations of all the species described in that work, it aims to give 'above all an accurate general impression of the whole living plant'. It must therefore be judged largely by its success in achieving this aim.

This second volume deepens the sense of disappointment created by the first. By and large the drawings are adequate, but the true genius of the botanical artist lies in his or her capacity to capture and transmit to paper those subtle and intangible attributes which give character to each species. Success or failure in achieving this evokes a response in the viewer equivalent on the one hand to the pleasure of greeting a personal friend and on the other to recognising an acquaintance. Too many of these drawings are acquaintances; some indeed acquaintances whose names escape us or we have difficulty in recalling. To this category belong *Sedum anglicum, Epilobium hirsutum, E. montanum, E. roseum, Aegopodium podagraria, Euphorbia lathyris, Polygonum lapathifolium, Salix caprea* and *Lysimachia nummularia* to name a few examples. If these are unconvincing the habit drawings of *Callitriche hermaphroditica,* depicted as an apparently shallow-water plant with floating rosettes, and *C. platycarpa,* represented as submerged and without rosettes, are actively misleading. The habit drawing of *Peplis* would pass equally well for *Callitriche stagnalis,* and one wonders if there is much point in doing habit drawings of such plants when the space could be used to so much greater advantage in showing enlarged flowers and dissections.

'The detail necessary for identification' is another avowed objective in these drawings, and the enlargements of parts are helpful. But will the drawings of *Oenanthe aquatica* and *O. fluviatilis,* or of *Circaea lutetiana* and *C. alpina* be adequate to set the user's mind at rest? And why is *Circaea intermedia* omitted when space is found for the dune form of *Pyrola rotundifolia* and for the hybrid *Erica ciliaris* × *tetralix*? *Epilobium obscurum* is shown devoid of stolons, with a glabrous stem and what looks like a hispid capsule. Here and in other drawings representation of pubescence is unsatisfactory—it is said to be 'conventional' in rendering and too often shares the artificiality of conventions. The effect is to convey hairyness by detracting from clarity and giving a general fuzziness of outline (e.g. *Salix lapponum*). It should surely be possible in drawings of this size to distinguish between glandular and eglandular hairs, yet glandular hairs are omitted where their presence is of diagnostic value in some species of willow-herb.

The chief value of this work lies in the pictures it supplies of species not illustrated elsewhere. *Sorbus* enthusiasts are well served with twenty drawings but blackberries are out of favour with only two, and although seven elms are described in the *Flora* only three are illustrated.

Is there really any call for a complete set of drawings of this mediocre standard when illustrations are readily available of the majority of species depicted? Inevitably they invite comparison with the parallel series of drawings being issued and by so doing they cannot fail to increase one's admiration for the elegant draughtsmanship of the other artist.

W.A.S.

Lords and Ladies, by **Cecil T. Prime.** Pp. xiv + 241 with a colour frontispiece, 6 photographs and 59 figures in the text. The *New Naturalist* Series. Collins, 1960. 21/-.

The idea behind the monographs in this series is to give as complete a picture as possible of the natural history of a single species. All sixteen of the previous monographs are on animals; and it is with pleasure that we welcome the first of a series on plants.

Dr. Prime has selected the common Lords and Ladies (*Arum maculatum* L.), on which he has been working for many years, as his subject, but he also quite rightly includes the less well-known *Arum italicum* Mill., with its native subspecies *neglectum* and the introduced subspecies *italicum.* These are rather rare and local plants in Britain, confined to the south and west of England.

The accounts of both species are remarkably complete, and it is clear that Dr. Prime is a master of many branches of knowledge. On the historical side, there

are fascinating chapters on the very numerous popular names for the species, and also on the ways in which they have been used by man, especially as a source of starch for stiffening the ruffs of the Elizabethan lords and ladies. The natural history of the plants is very fully described, especially their geographical distribution, germination and life history, and their methods of reproduction, both sexual and vegetative. Their ecology and habitat preferences are also described, and this is perhaps the one part of the book in which the treatment falls a little below the highest level. There is a full and up-to-date account of variation in chromosome number; it is shown that all the British material has 56 chromosomes, whereas Danish plants have 28. There are slight morphological differences between these two ' chromosome races ', though it will need more extensive work to show whether or not the races should be given subspecific or even specific rank. An interesting feature of *A. maculatum* is that it shows polymorphism in three characters, viz., leaf-spotting, colour of spadix and direction of coiling of the spathe; valuable quantitative information about all these characters, derived from numerous populations in many parts of Britain, is given. The text is well illustrated by maps and line drawings and there are some good photographs.

This is a book which every naturalist, amateur and professional, can read with profit and pleasure; it will undoubtedly serve as a model for future plant monographs in this series.

D.H.V.

The Lichen Flora of the United States, by **Bruce Fink.** Pp. 426 with 47 plates. Angus & Robertson Ltd., for University of Michigan Press. 50/-.

This is a re-issue of a work which was completed for publication by Joyce Hedrick eight years after Professor Fink's death and first issued in 1935. It has been out of print for some years and although the present edition is a second printing only and does not incorporate later work its re-issue is welcome for it is still the standard systematic work on the lichens of the United States. As moreover few authoritative works in English on lichen taxonomy are available and as the organisms concerned are more cosmopolitan than most plants its re-issue is of considerable interest to British as well as American students. The great majority of British species are included although generic concepts and nomenclature naturally vary considerably from those of A. L. Smith's monographs. In addition to the keys to families, genera and species and the descriptions of over 1500 species, there is a good introduction dealing with morphology and structure, a glossary and a series of excellent plates. The book is well printed and produced and, by comparison with many American texts, is very reasonably priced.

W.A.S.

Trees and Bushes in Wood and Hedgerow, by **Helge Vedal** and **Johan Lange,** translated by C. H. R. Hillman and adapted by H. L. Edlin. Pp. 224 with 96 pages of coloured illustrations and numerous other sketches in the text. Methuen. 16/-.

The similarity between our own flora and that of Denmark has made it an easy matter to adapt this book—first published in Denmark two years ago—to British conditions. The trees and shrubs included cover all commonly planted as well as indigenous species, the total number described being 23 conifers and 100 broad-leaved trees. The choice of species for inclusion contains some surprises. *Daphne mezereon* is included but not the commoner *D. laureola, Quercus borealis* but not *Q. ilex* or *Q. cerris,* while *Salix acutifolia, Ulmus laevis* and *Myricaria germanica* are unexpected entries. No one is likely to quarrel with their inclusion however in view of the beauty of the illustrations; indeed the 96 pages of coloured illustrations set a very high standard both in quality of colour reproduction and artistic elegance. The plates include sketches showing the form of the tree, fruits and, where appropriate, the uses to which its timber is put.

There are keys for the identification of all species included, based on leaf and stem characters, and their utility is enhanced by the accompanying sketches. The fuller descriptions include explanations of plant names and notes on habitat, utilisation and distribution. Additional sketches accompany the descriptions and frequently small maps are included illustrating world distributions. There are also sections on wood structure, the post-glacial history of British forests, tree breeding and notable big trees in Britain; the last section including the information that the

tallest broad-leaved tree in Britain is a common lime at Duncombe Park, Helmsley which stands 152 feet high.

The book is written in non-technical language for beginners and country-lovers generally, the information it embodies is both varied in range and sound and, above all, its illustrations are wholly admirable.

W.A.S.

Heathland Ecology, by **C. P. Friedlander.** Pp. 94 with 8 plates, 23 figures and 7 tables. Heinemann. 9/6.

The author deserves congratulations for bringing so enthusiastically to notice the great interest of a readily accessible type of country, as suitable for elementary training in biology as it is attractive for permanent study and enjoyment. There are, regrettably, few such introductory surveys of any of our great variety of well-characterised natural habitats treated as total ecosystems, with emphasis equally on the plants and on the animals.

The attempt, in one small volume, to include also an elementary account of ecological theory and some attention to practical methods could hardly succeed. The account of humidity for example is unduly long and confused, suitable neither for elementary nor advanced students and of little practical use. On the other hand the details of the specific plants and animals, the direction of interest to the community and environment as a unified entity combine with the excellent and relevant photographs to provide a stimulating guide of great potential worth to teachers and to naturalists of all ages and interests.

A.D.G.

The Anatomy of Plants, by **P. Font Quer.** Translated from the Spanish text by D. H. R. Newton. Pp. 128, with 49 text figures. Arrow Science Series No. 3. Arrow Books Ltd., London. 5/-.

This is the anatomy of plants in the classical sense. The major part of the text, and nearly all of the illustrations, are concerned with plant morphology rather than plant anatomy. The line illustrations of morphology are excellent, and constitute a most attractive feature of this little book. It is evident that Professor Font Quer is most at home in the realm of morphology, and the portions of this book which deal with cytology, anatomy, and floral biology are less satisfactory. The anatomical illustrations are few in number, and not adequate to explain the text. One is distressed to find in the legend to Fig. 27 that '. . . next comes the cortex, in which are two sieve tubes . . .'. Elsewhere, on pages 95 and 113, one finds that the female gamete is identified with the ovule, an evident lapse in translation. But it would be ungracious to ignore the credit owing to Mr. Newton in relation to what must have been a difficult task. In this country most botanists encourage the current trend for the simplification of terminology. Not so Professor Font Quer, it would seem, and his translator has had to work hard. How many botanists would nowadays immediately recognise such terms as rhytidoma, rhipidium, bostryx, antophyll, and dialytepal, or would know that the fruit of a rose is a cynorrhodon ?

J.D.L.

Wild Life of Wood and Forest, by **H. L. Edlin.** Pp. 208 with 39 plates. Hutchinson, London, 1960. 25/-.

The title of this book is a clear misnomer since it deals with only vertebrate animals. It is comprised of a series of such chapters as ' Deer ', ' Owls and Hawks ' and ' Reptiles and Amphibians in the Woodlands ' and purports discursively to evaluate the effect that these various creatures have upon the practice of forestry.

It would be tedious and a waste of space to catalogue the countless errors of fact which reveal without any doubt that however accomplished the author may be as a forester, his acquaintance with wild life is neither extensive nor intimate. His descriptions of birds appear to have been garnered from extremely badly printed plates. His comments, too, on their behaviour frequently inspire scant confidence. ' The hooded crow nests for preference in tall trees ' and of the Long-eared Owl that it ' constructs a definite nest, sometimes within a hollow tree but often in a crook of a fir bough ' are examples of statements which would not be made by anyone knowing either bird well and it is proverbially better that the cobbler should stick to his last.

A.H.

Handbooks for the Identification of British Insects. Published by the Royal Entomological Society, 41 Queen's Gate, London, S.W.7.

Vol. II, Part 3, Hemiptera Fulgoromorpha, by **Walter J. Le Quesne.** Pp. 68, 382 figs. Published August 16th, 1960. Price 17/6.

This is the first section of the Hemiptera to be treated in the *Handbooks* and covers the families Tettigometridae, Delphacidae, Issidae and Cixiidae largely neglected by British collectors. The keys are simple and appear to work admirably so far as the writer has used them and adequate descriptions are included within the keys. There is an ample provision of good figures. The use of male genitalia ensures certain determination, but females in *Delphacodes* are difficult (and sometimes impossible) to separate, but the figures of the gonocoxa provided here will be of great assistance, the differences being critical but discernible. Distribution is little known in many cases due to the lack of workers, but with one exception—*Criomorphus moestus* Boh., which is known from four other Yorkshire localities beside the one quoted—all the known Yorkshire records have been taken into account, which is often not the case in the *Handbooks*. Dr. Le Quesne is to be congratulated on an excellent work which one hopes will attract more workers to the Homoptera.

J.H.F.

A Key to the British Freshwater Cyclopid and Calanoid Copepods with Ecological Notes, by **J. P. Harding** and **W. A. Smith.** Pp. 54. Freshwater Biological Association. Scientific Publication No. 18. 4/6.

The latest of the F.B.A. keys should serve as an incentive to the study of the freshwater Copepoda by both amateur and professional naturalists, and not least by those who may have been overawed by the welter of detail in Gurney's standard work on the British species. In compact form—an easy-to-follow and accurate key largely of a novel tabular type, well illustrated by some of Gurney's beautiful illustrations—its authors have provided us with the basic essentials necessary for the identification of all the British species of freshwater Calanoida and Cyclopoida. Notes on ecology and distribution and a brief bibliography are also given.

Although the key is not designed to replace Gurney's monographs on these two groups the beginner will find it more manageable. This is largely because each species is identified by reference to several anatomical characteristics a large proportion of which are clearly illustrated, and because specific details are often pin-pointed in the illustrations by an arrow so that there can be no doubt as to which structure is being considered.

For a well-produced and authoritative handbook of this kind the price is extremely reasonable.

G.F.

The Sense of Smell, by **Roy Bedichek.** Pp. 271. Michael Joseph, London, 1960. 16/-.

Smell is probably the most neglected of our senses. There is not even a vocabulary of smell. This has not prevented Mr. Bedichek from writing a delightful and stimulating book, which richly deserves its Book Society recommendation. This Texan naturalist deals with the nose in literature, folklore and history, as well as in its physical and biological aspects, and his erudition is considerable.

The nose is tuned to the infinitely small. Even the relatively insensitive human nose can ' readily detect 1/460,000,000th of a milligram of mercaptan diffused in air '. However, the molecules which carry odours are slightly heavier than air and tend to lie near the ground. Thus the dog or rabbit are much better placed to detect smells than man walking on his hind legs, whilst the soaring eagle or vulture are generally out of reach of smells and have, as far as we can tell, dispensed with this sense. Our sense of smell can be trained, however, and the author describes some remarkably sensitive human noses. Most of their owners learnt to discriminate odours in early childhood and he suggests that botany teaching could usefully be adapted to encourage the education of the nose !

To the naturalist, however, perhaps the most valuable parts of the book are those dealing with mammals. Because most of us make little use of our own sense of smell, we are easily tempted to forget its importance in the animal's world and to interpret its actions in an anthropomorphic fashion. By making us more vividly aware of this neglected sense, Mr. Bedichek helps to enlarge our understanding of the world around us and especially of our fellow mammals.

C.S.

Wild Animals of the British Isles, by **Maurice Burton.** Pp. 180 with 111 plates, 48 in colour. Warne & Co., London, 1960. 17/6.

As the author fairly remarks in his preface, this is a revision of Edward Step's *Wayside and Woodland* volume on the vertebrate fauna of the British Isles. A few plates have been added, some line-drawings, and the text either modified or re-written in the light of the ralatively small amount of added knowledge which has become available since the work was first published. Not all of this has been utilised for there is, for example, no mention of delayed implantation in the Roe although there is for the Badger. There are also some surprising omissions for although the Marsh Frog is fully treated, as an introduced species, the Edible Dormouse is not treated at all. Sometimes, too, the revision is not altogether thorough and the Sand Lizard is still said to be found in Cheshire where I fear it has been extinct for many years and the Mouse-eared Bat is omitted although there has been increasing news of it during recent years.

I make these somewhat critical comments because, although Dr. Burton's revision will continue the useful life of Step's almost pioneer work for many years to come, the opportunity has not been taken of providing a definitive handbook on the British mammalia, the lack of which has been a standing reproach to naturalists and which will remain until it is bravely tackled *ad novum.* In the meantime there is much for all of us to do to clarify the distributions of even the commonest species as well as their habits and ecology. It is to be hoped that this invigorated version will do more even than the last one to stimulate such activity.

E.H.

Wildlife in America, by **Peter Matthiessen.** Pp. 304, with numerous photographs and text figures. Andre Deutsch, London. 36/-.

First and foremost this book stands as a terrible indictment of the European attitude to wildlife. For thousands of years before the coming of the whites, humans had lived in America with complex civilisations attuned to the apparently inexhaustible supplies of game animals which were their main food supplies. Within the space of a couple of centuries the advance of western populations has seen the virtual extinction of many of the game mammals and of several species, mammals and birds, which were exploited for their furs or feathers, as food, or what passed for sport.

The author is a practised hand and tells his story well so that despite its grim message it makes fascinating reading and is enlivened by quotation and anecdote.

An interesting chapter is devoted to the earlier naturalists and some fresh light is thrown upon the rivalry between Wilson and Audubon, not to the latter's credit. It is perhaps surprising to find that the first National Park was advocated by George Catlin as long ago as 1833, though it was another thirty years before it came to fruition.

It would be comforting to believe that we live in an age concerned with conservation, but in the United States especially this has become irremediably linked with politics and the best intentioned measures are apt to die of a form of umbilical strangulation. The author gives a list of species which are considered still to be in danger in an appendix which runs to twelve pages.

However, this book has been written and it is to be hoped that it will be put into enough of the right sort of hands to ensure that as far as American wildlife is concerned, the twin evils of cupidity and stupidity will be replaced by the sort of enlightened self-interest which ought always to be apparent but which needs always to be pointed out.

A.H.

A Book about Bees, by **Edwin Way Teale.** Pp. 208, with 85 photographs by the author. Mark Patterson & Co., for Indiana University Press, 1960. 16/-.

This book, which first appeared in America in 1940 and in Britain in 1943 under the title of *The Golden Throng* is now re-issued in paper covers. Not a book about bee-keeping, this is a pleasantly illustrated introduction to the life of the honey-bee. All the varied activities of the hive, the senses and the life of the bee are covered competently and without technicalities intruding upon an easy narrative style. The story has been told often before, but this volume deserves a place among the literature for those who want a general account of the bee.

J.H.F.

Ring of Bright Water, by **Gavin Maxwell.** Pp. 212 with 57 photographic illustrations and numerous text drawings. Longmans, London, 1960. 25/-.

Gavin Maxwell is naturalist, sportsman, artist and poet, apart from being a writer of great charm and competence. His account of living for the past ten years in a cottage on the coast of the Western Highlands is enjoyable on its own account but the interwoven story of the companionship of two otters, successively and of different species, is a separate joy tempered only by the account of the death of the first at the hands of a stupid oaf.

Most of all, the book is revelatory of the author as that increasingly rare phenomenon, an all-round man whose sensitive mind finds and communicates interest and delight in everything about him which is of ' beauty and of good report '. The photographs combine skill with artistry and are not the least part of the attraction of a book which will not be discarded when read.

A.H.

Animals of Britain, by **Edward Osmond.** Series 1. Pp. 144 with numerous illustrations. Oxford University Press, 1959. 7/6.

This is the first volume in a series and itself comprises four separate booklets bound together. It deals only with Badgers, Rabbits and Hares, Deer and Bats.

Although not explicit, these works are presumably intended for children. They are written in a cosy, ungrammatical style with entirely promiscuous punctuation. The matter is uncritical, generalised and frequently erroneous.

The production of the book is in conformity with the high standards of this distinguished press and it is a great pity that the contents do not match its excellence. Books for children need to be exemplary, not only in their presentation but also in their accuracy and style and this is another opportunity lost.

E.H.

Land Ownership and Resources: A Course of Lectures given at Cambridge in June 1958, by **Sir Solly Zuckerman, J. Enoch Powell, Lord Parker, C. H. J. Maliepaard, P. A. Stone** and **D. R. Denman.** Pp. 136 with 3 tables and 8 line figures. The Department of Estate Management, University of Cambridge, 1960. 15/-.

Most of us are grateful for the green belts which now limit the shapeless spread of our towns. Yet whilst land planning is accepted, we are too infrequently aware that the countryside cannot be preserved without use and management. This brings us to the thorny problem which is the concern of this course of lectures: the need to reconcile community and individual proprietary interests in land. Many will agree with Dr. Denman, in his co-ordinating lecture, that attention must be given to the freedom of the individual landowner but may not be able to accept fully his emphasis on the uniqueness of the estate in land. Country landlords are, however, in a difficult position and this course, which includes contributions by Lord Parker and Sir Solly Zuckerman, provides a first-rate introduction to the clash of interests.

The Geology of the Appleby District, by **H. C. Versey.** 4th edition. Pp. 40 with 1 plate and 6 figures. Whitehead & Son (Appleby) Ltd. 6/6.

The call for a fourth edition of this work, which was first published in 1941, is sufficient proof of its continued usefulness and popularity. In the present issue the plates which were included in the earlier editions have been dropped and a photographic frontispiece substituted; the account of the Upper Ordovician rocks has been revised and minor additions and alterations made throughout. The list of references has also been brought up to date by the inclusion of papers relevant to the area which have appeared since the last edition was printed.

Sir Julian Huxley, F.R.S., by **Ronald W. Clark.** Pp. 109 with 11 photographs. *Living Biographies* series. Phoenix House Ltd. 8/6.

The *Living Biographies* series tells the stories of men in many different walks of life who are making history today. Sir Julian Huxley's versatility and industry as scientist, writer, educator and man of vision well qualify him for inclusion in the series, and the competence of Mr. Clark's account of his career and achievements is appropriate to its subject.

Ten Little Housemates, by **Karl von Frisch.** Pp. 146, 70 figs. Pergamon Press, 1960. 17/6.

The houemates are houseflies, fleas, bedbugs, clothes moths, silverfish, spiders and other quite well-known though often unfamiliar pests and nuisances, and this little introduction contains a great deal of fascinating information on their ways. It explains why houseflies are undesirable visitors, why bedbugs are difficult to eradicate and how they arrive, how it is that clothes moths can eat fur and wool but not cotton, and, important to the householder, how to get rid of these unwanted guests. Accurate and to the point, illustrated by good drawings, the presentation will nevertheless often irritate as either the author or the translator lacks the ability to simplify without obvious condescension. In spite of this imperfection the book can be recommended to young people, particularly for the imaginative way in which it expounds the story of the life and functions of these ' housemates '.

J.H.F.

Chendru: the Boy and the Tiger, by **Astrid Bergman Sucksdorff.** English version by William Sansom. Pp. 54, profusely illustrated. Collins. 15/-.

This is a picture book based on Arne Sucksdorff's film *A Jungle Tale,* illustrating life amongst the isolated Murias of Central India. The story centres round the boy Chendru and his pet tiger cub and both the composition and reproduction of the coloured photographs illustrating tribal life, animals and jungle scenes reaches a very high standard.

Filmstrips: Flowers of Moorland and Bog, No. C6375. **Flowers of Marsh and Pool,** No. C6403, by **J. H. Elliott. The Hedgerow,** No. 6348; **Coniferous Trees,** No. 6299; edited by **J. H. Elliott.** Educational Productions Ltd., Wakefield, Yorks. 27/6 each.

Flowers of Moorland and Bog.—This strip would have been more accurately named if ' Plants ' had been substituted for ' Flowers ', since mosses and ferns are also included. The selection of plants gives a good general picture of typical moorland and bog species, though a close-up of *Sphagnum,* which plays so important a part in bogs would not have been out of place. It is a pity, too, that a section of a peat soil is not included. The frames of *Sphagnum* pools are particularly useful from an ecological point of view. The standard of photography is not high, the colours being deficient in some cases and an excessive blueness gives an artificial effect.

A wide selection of plants is included in *Flowers of Marsh and Pool* which will help the beginner in more rapid identification in the field. The strip shows the variety of water-loving plants, from the floating Bladderwort to the Reedmace anchored firmly on the margin, though the apparent absence of any Carex is rather curious in a filmstrip of this title. One or two frames illustrate zonation by showing the plant communities growing naturally rather than concentrating on one particular species. The photography is somewhat uneven, some pictures being very clear, others lacking definition and colour, and in one or two cases better positioning of the plant would have made it much more obvious.

The Hedgerow.—Here a variety of birds and insects is included as well as plants, which widens the scope of the filmstrip and increases interest. It is possible to bring out the interdependence of plant and animal life and to stress the seething activity which goes on in a hedgerow continually. The colour photography is excellent in practically all frames.

In all three the value of the strip might have been increased if more emphasis had been laid on ecological information rather than the illustration of single species, and if a pattern could be detected in the order in which the frames are presented, though some are linked together well. Each is accompanied by detailed notes and could be adapted to a variety of purposes.

Coniferous Trees is a rather different type of filmstrip from the previous three. Its aim is to familiarise coniferous trees in Britain, both native and introduced, and it fulfils a need which many will appreciate. Habit, foliage and reproductive organs are shown and outstanding characteristics, and the economic uses of the woods are emphasised in the accompanying notes. It seems successful in introducing a number of widely differing types of tree in the limits which are imposed on a filmstrip.

M.S.H.

CONTRIBUTORS

Appleyard, S. G., 137
Armitage, J., 110, 114

Bramley, W. G., 121-122, 140-141
Brindle, A., 19-20
Butcher, R. W., 123-125

Chislett, R., 3, 7, 13, 33, 37-79, 115, 125, 129, 132-133, 134, 135
Crossley, R., 8

Dalby, Miss M., 81-88
Dickens, R. F., 4, 33, 80, 102, 125-126, 128
Duncan, Mrs. J., 81-88

Fenton, J. K., 103-106
Flint, J. H., 17-19, 32, 109-110, 111, 141, 145, 146, 148

Gilmour, E. F., 22-23
Govett, J. R., 5-6
Grainger, Miss J., 30
Greenwood, A. D., 80, 144

Hague, J. B., 107-108
Hazelwood, A., 8, 31, 33, 106, 112, 115, 144, 146
Hazelwood, Mrs. E., 11-12, 35, 113, 116, 146, 147
Hewitt, Miss M. S., 36, 148
Hewson, F., 14-17, 110, 130
Hincks, W. D., 20-22, 97-102, 111-112

Kerr, T., 32
Kilby, Miss R., 134

Lee, A. H. B., 7, 103-106
Lovis, J. D., 36, 112, 144
Lund, J. W. G., 89-96

Mackie, D. W., 108-109
Mendham, N. V., 116
Morehouse, Mrs. E. M., 13, 130

Payne, Mrs. J., 4, 137
Pearsall, W. H., 34
Pemberton, R. T., 1-3
Ping, A. W., 116
Pringle, G. E., 80

Rayfield, Mr. and Mrs. P. A., 88
Rob, Miss C. M., 24-26, 135-136, 137-138
Round, F. E., 117-121
Russell, H. M., 22, 137

Shaddick, Miss C., 145
Shaw, G. A., 26-27, 30, 133
Simms, C., 132
Sledge, W. A., 30, 130-131, 142, 143, 144

Valentine, D. H., 142-143
Versey, H. C., 34, 114

Walker, Miss D., 23-24, 133
Walker, D. F., 136-137
Wesley, A., 113
Winn, C., 88

CLASSIFIED INDEX

COMPILED BY G. A. SHAW

Algae.—Some New British Algae, J. W. G. Lund, 89-96; The Algal Flora of a Salt Spring Region at Manesty, F. E. Round, 117-120.

Amphibia.—Annual Report, 1959, Mrs. E. Hazelwood, 12.

Arachnida.—Some Spiders from North Perthshire, D. W. Mackie, 108-109.

Book Reviews.—Amateur Photographer.—Photograms of the Year, 1960, 35.
Annison, E. F. and Lewis, D.—Metabolism of the Rumen, 34.
Barker, W.—Familiar Animals of America, 35.
Bedicheck, R.—The Sense of Smell, 145.
Bell, P. R. (Ed.).—Darwin's Biological Work, Some Aspects Reconsidered, 112
Berry, W. D. and E.—Mammals of the San Francisco Bay Region, 116
Brehaut and Dawson.—An Approach to Natural Science, 116
British Museum.—British Caenozoic Fossils, 114
Burton, M.—Wild Animals of the British Isles, 146
Cambridge University.—Land Ownership and Resources, 147
Campbell, B.—Bird Watching for Beginners, 8.
Casanova, R.—Fossil Collecting, 114
Clark, R. W.—Sir Julian Huxley, F.R.S., 147
Corbet, P. S., Longfield, C., and Moore, N. W.—Dragonflies, 111
Cowles, R. B.—Zulu Journal, 80
Dunbar, C. O.—Historical Geology, 113
Duncan, Miss Ursula.—A Guide to the Study of Lichens, 30.
Edlin, H. L.—Wild Life of Wood and Forest, 144
Educational Productions Ltd. (Pub.).—Film Strips: Grasses; Seed Germination; Insects in the Garden; Resident British Birds, 36; Flowers of Moorland and Bog; Flowers of Marsh and Pool; The Hedgerow; Coniferous Trees, 148
Farb, P.—Living Earth, 80.
Field Studies Council.—Field Studies, No. 1, 6.
Fink, B.—The Lichen Flora of the United States, 143
Forbes, D.—Life Before Man—The Story of Fossils, 114.
Fraser, F. C.—Handbooks for the Identification of British Insects, Vol. I, parts 12 and 13, Mecoptera, Megaloptera and Neuroptera, 111-112
Freuchen, P. and Salomonsen, F.—The Arctic Year, 31
Frisch, K. von.—Ten Little Housemates, 148
Gabrielson, I. N.—Wild Life Conservation, 34
Gorbman, A.—Comparative Endocrinology, 33
Hamilton, F.—Let the Forest Judge, 106
Harding, J. P. and Smith, W. A.—A Key to the British Freshwater Cyclopid and Calanoid Copepods with Ecological Notes, 145
Heinroth, O. and K.—The Birds, 33
Hillstead, A. F. C.—The Young Bird Watchers, 33
Knight, M.—Taming and Handling Animals, 35
Leopold, A. S.—The Wild Life of Mexico, 115
Lunt, D. C.—Thousand Acre Marsh, 80
Macan, T. T.—A Key to the British Fresh- and Brackish-water Gastropods, 114
Matthiessen, P.—Wildlife in America 146
Maxwell, G.—Ring of Bright Water, 147
Medawar, P. B.—The Future of Man, 115
Meen, V. B.—Quetico Geology, 114
Metcalf, W.—Native Trees of the San Francisco Bay Region, 116
Morrell, W. P.—Sir Joseph Banks in New Zealand, 36
Osmond, E.—Animals of Britain, 147
Patchett, M.—The Proud Eagles, 112
Perkins, J. F.—Handbooks for the Identification of British Insects, Vol. VII, part 2, Ichneumonoidea, 111-112
Prime, C. T.—Lords and Ladies, 142-143
Quer, P. Font.—The Anatomy of Plants, 144
Quesne, W. J. Le.—Handbooks for the Identification of British Insects, Vol. II, part 3, Hemiptera Fulgoromorpha 145
Reade W.—Out of Doors, 34
Roles, S. J.—Flora of the British Isles, Illustrations, Part 2, 142

Russell, W. M. S. and Burch, R. L.—The Principles of Humane Experimental Technique, 31
Seton, E. T.—Animal Tracks and Hunting Signs, 116
Smith, A. C.—Introduction to the Natural History of the San Francisco Bay Region, 116
Smith, L. P.—Weathercraft, 116
Soper, E. A.—Wanderers of the Field, 35
Southwood, T. R. E. and Leston, D.—Land and Water Bugs of the British Isles, 32
Stebbins, R.—Reptiles and Amphibians of the San Francisco Bay Region, 116
Stewart, E.—Welcome the Birds, 33
Sucksdorff, A. B.—Chendru: the Boy and the Tiger, 148
Swinnerton, H. H.—Fossils, 114
Teale, E. W.—A Book about Bees, 146
Vedal, H. and Lange, J.—Trees and Bushes in Wood and Hedgerow, 143-144
Versey, H. C.—The Geology of the Appleby District, 147
Weisz, P.—The Science of Biology, 32
Wenzel, F.—The Buzzard, 7
Wilson, V., Welch, F. B., Robbie, J. A. and Green, G. W.—The Geology of the Country around Bridport and Yeovil, 34

Botany (Flowering Plants).—General Report for 1959, Miss D. Walker, 23-24; Plant Records, Miss C. M. Rob, 24-26; The Vegetation of Swinsty and Fewston Reservoirs 1957 to 1959, Joan E. Duncan and Mary Dalby, 81-88; Notes on Water Buttercups, R. W. Butcher, 123-125; Excursions: Driffield (W. A. Sledge), 130-131; Kiplin (C. M. Rob), 135-136; Gargrave (Miss R. Kilby), 134; Baysdale (Miss D. Walker), 133; Fairburn (C. M. Rob), 137-138; Joint Meeting between Y.N.U. and B.S.B.I., 138-139

Bryophyta.—Annual Report, 1959, G. A. Shaw, 26-30; Excursions: Baysdale (G.A.S.), 133; West End (F. E. Branson), 139-140

Coleoptera.—Annual Report, 1959, J. H. Flint, 17-18; Water-beetles and Bugs at Barnbow near Leeds, J. H. Flint, 109-110; A New Yorkshire Beetle, J. Armitage, 110; *Hylecoetus dermestoides* (L.), an uncommon beetle at Helmsley, J. H. Flint, 141.

Diptera.—Annual Report, 1959, H. M. Russell, 22

Entomology (General).—*Neobisium carpenteri* (Kew) (Pseudoscorpiones): The first record for Gt. Britain, D. W. Mackie, 109; Excursions: Fairburn (H. M. Russell), 137

Geology.—Baysdale Geology and Landforms, C. Simms, 132

Hemiptera.—Annual Report, 1959 J. H. Flint, 18-19

Hymenoptera.—Annual Report, 1959, W. D. Hincks, 20-22

Lepidoptera.—Burnet Moths taken by a Song Thrush, J. Payne, 4; Annual Report, 1959, F. Hewson, 14-17; *Plusia acuta* Walker in Yorkshire, F. Hewson, 110; Excursions: Driffield (F. Hewson), 130; Fairburn (J. Payne), 137

Mammalia.—Annual Report, 1959, Mrs. E. Hazelwood, 11-12

Mollusca.—Annual Report, 1959, Mrs. E. M. Morehouse, 13; Excursions: Driffield (E.M.M.), 130; Fairburn (S. G. Appleyard), 137

Mycology.—Annual Report, 1959, Miss J. Grainger, 30; Notes on the Laboulbeniales, W. D. Hincks, 97-102; Mildew in 1959, W. G. Bramley, 121-122; Autumn Foray at Thornton Dale, W. G. Bramley, 140-141

Obituary.—W. W. Nicholas, 125

Odonata.—Annual Report, 1959, J. H. Flint, 18

Ornithology.—Some Notes on Starlings and Black-Headed Gulls, R. T. Pemberton, 1-3; Northern Tree-Creeper in Yorkshire, R. Chislett, 3; Bearded Tits in Yorkshire, R. F. Dickens, 4; Mortality of Wild Birds on Roads, J. A. Govett, 5-6; Ornithological Section Meetings, 7; Correspondence (Trapping at High Royd), R. Crossley, 8; Interim Report, R. Chislett, 13; Annual Report for 1959 of the Ornithological Section, R. Chislett (including report on the Spurn Bird Observatory (G. H. Ainsworth and R. Chislett), 37-40), 37-79; Garden Trapping at Thornaby-on-Tees, 1950 to 1958, Mr. and Mrs. P. A. Rayfield, 88; Shore Lark at Fairburn, C. Winn,

88; Fairburn Ings Nature Reserve, R. F. Dickens, 102; Notes on Wader Movements in Yorkshire, J. K. Fenton and A. H. B. Lee, 103-106; Successful Rearing of Tree Sparrow by a Blue Tit, J. B. Hague, 107-108; Waxwings in Yorkshire in the winter 1958-59, R. F. Dickens, 125-126; Fairburn Ings in 1898, R. F. Dickens, 127-128; Excursions: Driffield (R.C.), 129; Baysdale (R.C.), 132-133; Gargrave (R.C.), 134; Kiplin (R.C.), 135; Fairburn (D. F. Walker), 136-137

Orthoptera and Neuroptera.—Annual Report, 1959, A. Brindle, 19-20.

Pisces.—Annual Report, 1959, Mrs. E. Hazelwood, 12

Plant Galls.—Annual Report, 1959, E. F. Gilmour, 22-23

Reptilia.—Annual Report, 1959, Mrs. E. Hazelwood, 12

Yorkshire Naturalists' Union.—Joint Meetings of the Vertebrate Sections, 1959, A. H. B. Lee, 7; Annual Report, 1959, 9-30

Circular No. 590

Yorkshire Naturalists' Union.

President:
D. H. VALENTINE, M.A., Ph.D., F.L.S.

Hon. Treasurer:
M. M. SAYER, Esq., 10 The Gardens, Heath Road, Halifax.

Assistant Hon. Treasurer and Membership Secretary:
G. A. SHAW, Esq., The Department of Botany, The University, Leeds, 2.

Hon. General Secretary:
Miss C. M. ROB, Catton Hall, Thirsk.
Telephone: Topcliffe 224.

Spring Sectional Meetings
1960

INDOOR

All Members and Associate Members of the Union are eligible to attend Sectional Meetings.

CONCHOLOGICAL SECTION

Saturday, 12th March. City Museum, Park Row, Leeds, 1, 2-30 p.m. (by kind permission of the Director).

Paper by Mr. John Armitage: 'J. W. Taylor, a great Yorkshire Conchologist.'

VERTEBRATE ZOOLOGY SECTIONS

Saturday, 19th March. Leeds University, Lecture Theatre (Baines Wing), 3 p.m.

Mr. Kenneth Williamson, Migration Officer to the B.T.O., will speak on ' The Development of Work at British Bird Observatories.'

The Report of the Spurn Sub-Committee and the Annual Report of the Ornithological Section will be presented by Mr. G. H. Ainsworth and Mr. R. Chislett respectively.

ENTOMOLOGICAL SECTION

Saturday, 26th March. City Museum, Park Row, Leeds, 1, 2-30 p.m. (by kind permission of the Director).

Lepidoptera Committee:

Agenda

1. ' Lepidoptera and the Camera.' Mr. G. E. Hyde, F.R.E.S.
2. A new List of Yorkshire Lepidoptera. (Discussion.)
3. Pug Moths. (Identifications.)

CONCHOLOGICAL SECTION

Saturday, 9th April. City Museum, Park Row, Leeds, 1, 2-30 p.m. (by kind permission of the Director).

Paper on ' Slugs.' Mr. S. G. Appleyard.

ENTOMOLOGICAL SECTION

Saturday, 30th April. City Museum, Park Row, Leeds, 1, 2-30 p.m. (by kind permission of the Director).

Coleoptera and Other Orders Committees:

Messrs. H. M. Russell and J. H. Flint will read the papers on ' The Insects of Malham Tarn ', delivered by them before the Royal Entomological Society in January. Dr. W. D. Hincks will speak on the Sawflies. There will also be an exhibition of specimens to which Members are asked to contribute.

The Business includes discussion of a projected list of Yorkshire Coleoptera.

FIELD MEETINGS

BRYOLOGICAL SECTION

Saturday, 9th April. West End, near Blubberhouses. Meet Otley bus station, 10-30 a.m. Carry lunch. It is hoped to transport the party by private car.

MYCOLOGICAL SECTION

Thursday, 21st April, to Monday, 25th April.

THE SPRING FORAY

will be held at

HOLME-ON-SPALDING-MOOR

HEADQUARTERS.—Holme Hall Guest House (Oblates of the Assumption), Holme-on-Spalding-Moor. The charges will be £1 1*s.* 0*d.* per day. Members wishing to be there should write in the first instance to Miss J. Grainger, Wilshaw, Meltham, Huddersfield, stating their wishes, dates (if not able to stay the whole time), etc.

Holme-on-Spalding-Moor has not been previously visited by the Mycological Committee and should prove very interesting as there are woodlands, low-lying ground and land drains with vegetation. A good workroom is available.

On **Sunday, 24th April,** Mr. R. Watling will give a paper entitled ' Fungal Succession of Kestrel Pellets.'

ENTOMOLOGICAL SECTION

Sunday, 1st May. Excursion to Askham Bog.

Meet at the central ride through the bog approximately 10-30 a.m. Carry lunch. Lunch will be taken in the vicinity of the central ride, and Members arriving late should be able to contact the party then.

CONCHOLOGICAL SECTION

Saturday and Sunday, 14th and 15th May. Weekend Meeting.

Tadcaster for the Bolton Percy and Stutton areas. Arrangements will be completed nearer the date. Further information on request from Mr. E. Dearing, B.Sc., 37 Ormerod Road, Burnley, Lancs.

The **Whitsun Meeting** of the Union will be at Driffield, V.C. 61, 4th to 6th June.

CIRCULAR No. 591

Yorkshire Naturalists' Union.

President:
D. H. VALENTINE, M.A., Ph.D., F.L.S.

Hon. Treasurer:
M. M. SAYER, Esq., 10 The Gardens, Heath Road, Halifax.

Assistant Hon. Treasurer and Membership Secretary:
G. A. SHAW, Esq., The Department of Botany, The University, Leeds, 2.

Hon. General Secretary:
Miss C. M. ROB, Catton Hall, Thirsk.
Telephone: Topcliffe 224.

Divisional Secretary:
Miss E. CRACKLES, 143 Holmgarth Drive, Bellfield Avenue, Hull.

The 570th Meeting

WILL BE HELD AT

DRIFFIELD

V.C. 61

From Saturday, JUNE 4th, to Monday, JUNE 6th, 1960

HEADQUARTERS.—The Bell Hotel, Driffield. Manageress: Mrs. Wilkinson. Tel.: Driffield 334211. Bed and Breakfast, 21/-; Dinner from 7/6.

Other accommodation is available at 'The Highfield Country Club', Driffield (beginning of the Scarborough Road). Manageress: Mrs. Marshall. Tel. 3250. Bed and Breakfast, 21/-; Dinner, 10/6, temporary membership 2/6 per day. Also at Southorpe Guest House (near railway station): Bed and Breakfast, 15/- to 17/6; Dinner, 5/-.

It is important that members should book accommodation as soon as possible. In case of difficulty please contact the Divisional Secretary.

TEA AND MEETING.—Tea at the Bell Hotel at 5-0 p.m. on Monday, June 6th. Tongue and salad tea, 6/6. Tea should be ordered by postcard to Mrs. Wilkinson by May 28th. This will be followed by a meeting for the presentation of reports and other business.

TRANSPORT FACILITIES.—Driffield can be reached by bus from Hull, Bridlington, Scarborough, York and Leeds.

AREAS TO BE VISITED AND PROGRAMME.—Meet at Headquarters at 10-30 a.m. each day. During the week-end it is proposed to visit the Sledmere Estates, marshy ground by the River Hull between Wansford and Driffield and possibly wold country in the vicinity of Cowlam and Cottam.

MAPS.—Ordnance Survey 1 in. maps Nos. 98, 99 and possibly 93.

PERMISSIONS.—We are very indebted to the following landowners for permission to visit their estates: Sir Richard Sykes and Mr. Bradley of Golden Hill, Wansford. Other permissions are being sought.

Many landowners are concerned about nesting birds at this time of the year which all members will appreciate. An undertaking has been made that gates will not be left open and no damage done to fences, etc. NO DOGS ARE ALLOWED. Membership cards should be carried.

THE AREA.—It is intended to concentrate on areas which are not well worked and have not been previously visited by the Union. The Natural History of the Sledmere Estates, in particular, appears to be little known. It is hoped to gain access to some of the wooded parts of the area. In addition there are dry valleys with chalk grassland on the hill sides, chalk quarries and arable land. It is near Driffield that the main streams arising from the chalk have their sources; the upper reaches of the River Hull form here a trout stream rapidly flowing in a tortuous course through marshy meadows. Here and there are remains of ox-bows which invite the naturalist's attention.

PREVIOUS MEETINGS.—There have been recent visits to other parts of the chalk wolds, notably to Thixendale, 1956; Bishop Wilton, 1957; and Birdsall, 1959. The Union has visited Driffield on previous occasions: May 26th, 1890; July 8th, 1899; July 8th, 1916; August 3rd-5th, 1929; July 8th, 1939; and July 8th, 1950. On most of these occasions an investigation of Kelleythorpe Marsh has been the main object of the visit. In 1929, marshy ground south of Driffield was also visited as well as old chalk quarries near Ruston Parva; the account of this excursion is particularly helpful (*The Naturalist*, January, 1930).

FLOWERING PLANTS (E. Crackles).—The 10 k.m. square containing Sledmere is underworked. There seem to be few plant records for the immediate vicinity of Sledmere, but confirmation of an old record for *Neottia nidus-avis* (L.) L. C. Rich. for ' the Sledmere Parish ' would be particularly gratifying as the species has not been recently recorded for the Riding. The Cowlam-Cottam hillsides are known to bear a good chalk flora containing most of the species which are reasonably frequent on the East Riding chalk, but a more thorough search of the area may result in the discovery of some of the rarer species both of chalk grassland and arable. *Orchis morio* L. occurs near Cowlam and an interesting recent discovery is that *Cirsium acaulon* (L.) Scop grows by the edge of the ancient track, the ' Wold Gate '. There are old unconfirmed records for *Astragalus danicus* Retz. both for canal banks near Driffield and for ' roadside gravelly hillocks between Syke's monument and Garton ' and a sharp look-out should be kept for the species. *Gentianella campestris* (L.) Börner has rarely been recorded for the Riding, but was once recorded for Driffield Wold.

It is expected that many interesting marsh plants and aquatics will be seen in the area between Wansford and Driffield. The River Hull valley is a happy hunting ground for Carex species; the most widespread being *Carex rostrata* Stokes, *C. vesicaria* L., *C. riparia* Curt., *C. acutiformis* Ehrh., *C. panicea* L., *C. flacca* Schreb., *C. hirta* L., *C. elata* All., *C. acuta* L., *C. paniculata* L. and *C. otrubae* Podp. Of aquatics, *Ranunculus aquatilis* L. subsp. *pseudofluitans* (Syme) Clapham has been found to be abundant in the Wansford area. The most frequently occurring Pondweeds are *Potamogeton natans* L., *P. lucens* L., *P. crispus* L. and *Groenlandia densa* (L.) Fourr. *Potamogeton friesii* Rupr. has been found recently in the Old Howe at North Frodingham as well as in the Leven Canal and may well be more widespread, whilst *P. alpinus* Balb. only at present known from Leven Canal was formerly said to be ' common in the River Hull and large drains '.

BRYOLOGY.—For a comprehensive list of mosses and hepatics recorded for Kelleythorpe marsh, see *The Naturalist*, 1950, p. 175.

FUNGI.—A long list of fungi, mainly micro-fungi, recorded for King's Mill marsh, is to be found in *The Naturalist*, 1939, p. 296.

VERTEBRATES.—For notes on the vertebrates of the Driffield area, see the circular for the 1950 meeting and the report for the 1929 meeting in *The Naturalist*, 1930.

ORNITHOLOGY (H. O. Bunce).—Very little work has been done in the Sledmere area during the breeding season. The bird-list should be similar to the ones made on recent visits by the Union to the rather dry, closely-keepered Wold estates of Bishop Wilton and Warter-Thixendale. Definite information (in the form of map references or localities) would be welcome, especially of the following scarce, local or so far unrecorded species: Chiffchaff, Redstart, Whinchat, Wheatear, Tree-Pipit and Corn Bunting. Quail is a possibility in the Cottam area.

There are also few recent records from the attractive stretch of river between Driffield and Wansford, though the writer worked it for several seasons in the 1930's. Breeding species are likely to be those seen at Kelleythorpe. Little Grebe bred commonly on the trout stream, Redshank and Snipe sparingly, Teal possibly. Common Sandpiper showed a marked spring and autumn passage, with no suggestion of breeding. Reed-Warblers and Yellow Wagtails breed below Wansford, but were not recorded upstream. Again, map references of these and of Corn Buntings are needed.

FRESH WATER BIOLOGY.—Interesting notes on the fauna of the Driffield trout stream are to be found in the circular for the 1939 meeting.

ENTOMOLOGY.—*Lepidoptera:* Mr. D. Wade has supplied the following list of Butterflies and Moths which may be expected to occur in the area in their appropriate season:

Wansford (Butterflies): Large White, Small White, Green-veined White, Orange-tip, Meadow Brown, Wall, Small Heath, Ringlet, Small Tortoise-shell, Peacock, Red Admiral, Painted Lady, Small Copper, Common Blue, Holly Blue and Large Skipper. Moths: Poplar Hawk-moth, Eyed Hawk-moth, Puss Moth, Sallow Kitten, Red Underwing, Bulrush Wainscot and Garden Tiger.

Sledmere: Many of the above, also the following Butterflies: Dingy and Grizzled Skippers and the Marbled White; also possibly Small Skipper, Brown Angus and Dark Green Fritillary.

Other Groups.—For a general note on insects of the area, see the British Association Handbook to Hull and the East Riding of Yorkshire, 1923.

Plant Galls.—Driffield area: *The Naturalist*, 1930, pp. 21-22.

Hemiptera.—*The Naturalist*, 1930, pp. 23-25.

The Next Meeting will be at Baysdale, V.C. 62, **SUNDAY,** June 19th, 1960.

CIRCULAR No. 592

Yorkshire Naturalists' Union.

President:
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Divisional Secretary:
I. C. LAWRENCE, Esq., 60 Cambridge Road, Linthorpe, Middlesbrough

The 571st Meeting

WILL BE HELD AT

CASTLETON for BAYSDALE

V.C. 62

On Sunday, JUNE 19th, 1960

HEADQUARTERS.—The Robin Hood and Little John Inn, Castleton. Proprietress, Mrs. V. Allison, Telephone Castleton 232. High Tea from 6/6 per head.

TEA AND MEETING.—Tea at Headquarters at 5 p.m. followed by the meeting for the presentation of reports, election of new members and any other business.

Members requiring tea are advised to order by postcard not later than Thursday, June 16th; Mrs. Allison cannot guarantee to provide meals otherwise.

Members wishing to stay the weekend in the area should write to the Moorlands Private Hotel, Castleton, where limited accommodation is available.

TRANSPORT.—Castleton is not well served by public transport; there is a summer train service on Sundays, but the times are not available until early June. The station is on the Middlesbrough/Whitby Line.

The Bus service is not too good and the use of private transport is advised.

Members coming by car from York and the south will find the road over Blakey Rigg, from Hutton-le-Hole to Castleton the most direct route, from Thirsk and Stokesley, the Kildale, Commondale road is the nearest and most direct.

MAPS.—Sheet 86. One inch Ordnance Survey. New Popular Edition. Redcar/Whitby.

Sheet 45/60. National Grid. 1: 25,000 (2½ inch).

MEET AT HEADQUARTERS.—10-30 a.m., go by car to HOB HOLE WATH arriving 10-45.

AREA TO BE VISITED.—The upper part of the Baysdale Beck Valley. This is an area of heather moor, lying to the west of Castleton. Hob Hole Wath is approx. 600 ft. O.D., Burton Howe, above Ingleby Greenhow and Incline Top are 1400 ft. The Beck gives rise to several marshy areas, the valley itself being deep with steep slopes for most of its length. There are a number of side gills running into the main valley which stretches for more than four miles. The "Tops" on both sides are open moorland.

The area has been very little visited and information regarding the natural history of the whole district is lacking. The lower part from Castleton to Hob Hole Wath and a short way up stream was included in the Union's Castleton visit in August 1939. (Circular No. 420).

Other Union visits to this district are, June 1911, Danby, and August 1913, Great Ayton.

Most of the common birds of this type of country may be expected, Goldcrest and Ring-Ousel are known to occur, Curlew are plentiful, Grouse, Snipe, and Wheatear, are common in the area.

Badgers and Foxes are fairly abundant.

Some records of the flowering plants for Baysdale appear in Baker's *North Yorkshire*. Here the dale is described as "a secluded, thinly-populated dale, with an abbey and thick fir-plantations"; no doubt there has been much felling of timber since then. The most interesting flowering plant from Baysdale is *Potamogeton coloratus*. W. Mudd gives bogs near the Black Beck as the locality; confirmation of this record would be very useful.

Some other records of interest for this part of the Cleveland Hills are *Vaccinium intermedium*, the hybrid of Bilberry and Cowberry, at Lounsdale in Cleveland, *Calamagrostis epigejos* and *C. canescens* (Kildale), *Hyperium elodes*, *Myrica gale*, and *Juniperus communis*.

Over 270 species have been recorded for the 10 km. square and it is unlikely that there will be many additions.

Little work has been done on the Bryophytes of the area but there seem to be some interesting habitats in the dale.

As much of the ground is heather moor, members are asked to take every precaution against Fire. No dogs are allowed, and care must be taken to disturb the game as little as possible.

The next Meeting of the Union is at GARGRAVE, V.C. 63, July 2nd-3rd

CIRCULAR No. 593

Yorkshire Naturalists' Union.

President:
D. H. VALENTINE, M.A., Ph.D., F.L.S.

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G. A. SHAW, The Department of Botany, The University, Leeds,2.

Hon. General Secretary:
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Telephone: Topcliffe 224.

Divisional Secretary:
R. S. ATKINSON, F.Z.S., 46 White Hill Avenue, Barnsley.

The 572nd Meeting

WILL BE HELD AT

GARGRAVE

V.C. 63

From Saturday, JULY 2nd, to Sunday, JULY 3rd, 1960

HEADQUARTERS.—The Dyneley House Private Hotel, Newmarket Street, Skipton. Manager, Mr. N. Critchley. Tel. Skipton 2169. Bed and Breakfast 17/6, Dinner 6/6, Packed lunches from 2/6, Car Park 1/-.

Other accommodation is available at the Midland Hotel, Broughton Road, Skipton. Tel. Skipton 2781. Bed and Breakfast from 21/-. There is also the Kirke Syke Guest House, 19 High Street, Gargrave, Tel. Gargrave 356. Bed and Breakfast 17/6. Evening meal and packed lunch can be provided.

Members are asked to book accommodation as soon as possible stating the type of accommodation they require.

MEET.—Headquarters 10 a.m. each day.

TEA AND MEETING.—Tea at 5-0 p.m. on Sunday followed by a meeting for the presentation of reports. Will those requiring tea please notify Mr. Critchley not later than June 25th, stating that they are in the Y.N.U. party.

TRANSPORT FACILITIES.—Skipton is well served by rail and there are good services from Leeds and Bradford. Some trains stop at Gargrave. The summer time-table will be in operation and times of trains should be checked beforehand. Ribble and Pennine buses serve Gargrave from Skipton.

MAP.—Ordnance survey 1 inch map Sheet 95, Blackburn and Burnley.

THE AREA.—The Craven area has always attracted naturalists from the West Riding. The Leeds and Liverpool canal forms the boundary between Vice Counties 63 and 64. Most of the area south of Gargrave is pastureland. Elslack moor is typical heather moor preserved for grouse shooting. A characteristic feature of the topography is the series of long hog backed hills called drumlins.

PREVIOUS MEETINGS.—The Union visited the Skipton area in July 1932 and a full account of this excursion will be found in *The Naturalist* of that year p. 346-50

ORNITHOLOGY.—(Mr. A. Pilkington): This is a very good area because of the variety of habitats; these include woodlands, moorland, river, several tarns and a sewage farm. Oyster catchers nest on the shingle banks of the river Aire and nearby fields. There is a heronry at Gargrave and in the woods occur Woodcock, Green and Greater Spotted Woodpecker, Wood and Garden Warblers, Tree Creeper, etc. Those with cars may like to visit the lake at Coniston Cold, now a bird sanctuary with a good variety of waterfowl. The commoner ducks may be seen on Winterburn reservoir and Settle sewage farm is a good place for waders.

BOTANY.—(G. A. Shaw): At the last meeting there most attention seems to have been paid to V.C. 64. It is suggested that on this occasion the riverside ings between Skipton and Gargrave would repay attention. The Greater Spearwort (*Ranunculus lingua*) still survives in small amounts. Other plants which occur hereabouts are Marsh Stitchwort (*Stellaria palustris*), Creeping Jenny (*Lysimachia nummularia*), and Wood Club-Rush (*Scirpus sylvaticus*). The only Water Figwort seen by the writer is *Scrophularia umbrosa* and observation should be made to see if *S. aquatica* also occurs.

Certain railway cuttings near Gargrave station have long been known to local botanists for an interesting flora, among which may be mentioned the Fragrant Orchis (*Gymnadenia conopsea*), Bee Orchis (*Ophrys apifera*), and Creeping Bellflower (*Campanula rapunculoides*).

A riverside wall in the centre of Gargrave is well known as a site for the Rusty-back Fern (*Ceterach officinarum*), and attention is drawn to Baines' old record (quoted in Lees) for the Creeping Bellflower (*Wahlenbergia hederacea*) from moist meadows near Gargrave.

ENTOMOLOGY.—Lepidoptera (F. Hewson, F.R.E.S.): There are few records for the immediate Gargrave district but the following may possibly be found.

Campea margaritata (Light Emerald), *Cryphia perla* (Marbled Beauty), on walls *Spechia bembeciformis* (Lunar Hornet), *Calostigia salicata* (Striped Twin-Spot Carpet), *Lygris dotata* (Barred Straw), *Venusia cambrica* (Welsh Wave), *Nudaria mundana* (Muslin Footman) on walls, *Anagoga pulveraria* (Barred Umber) larvae on sallow, *Stenoptilia bipunctidactyla* (on Scabious).

Others Orders (J. H. Flint, F.R.E.S.): The area is unlikely to be particularly rewarding for beetles; the best results are likely to be obtained by working the river and along streams running up to the higher ground. Sawflies and Jassid hoppers associated with grasses, sedges and rushes are likely to be well represented and these and the caddis flies may provide the most interesting insects. The area has not been well worked and records of all orders will be most welcome.

MOLLUSCA.—(E. Dearing, B.Sc.): The usual limestone molluscs are found but not in profusion. Those occurring in the canal are *Bithynia tentaculata* L., *Limnea truncatula* Mull., *L. stagnalis* L., *L. auricularia* L., *L. pereger* Mull., *Planorbis carinatus* Mull., *P. vortex* L., *Succinea putris* L., *Sphaerium corneum* L., *Anadonta cygnaea* L., *Dreissensia polymorpha* Pallas, *Arianta arbustorum* L., *Agriolimax agrestis* L.

The Next Meeting will be at LANGTON-on-SWALE, V.C. 65 on Saturday, July 16th, 1960.

CIRCULAR No. 594

Yorkshire Naturalists' Union.

President:
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Hon. General and Divisional Secretary:
Miss C. M. ROB, Catton Hall, Thirsk.
Telephone: Topcliffe 224.

The 573rd Meeting

WILL BE HELD AT

GREAT LANGTON AND KIPLIN

V.C. 65

On Saturday, JULY 16th, 1960

MEET.—Langton Bridge, Great Langton, 10-30 a.m.
Langton Bridge is on the Kirby Fleetham to Great Langton Road. There is a limited parking space on the roadsides and it may be possible to get somewhere better arranged by the day of the meeting.

TEA AND MEETING.—Tea will be at Kiplin Hall at 5 p.m. by invitation of Miss Talbot. Members are asked to bring their food. **Tea only** will be provided.
After tea there will be a general meeting, for the presentation of reports, election of members and any other business.
Miss Talbot of Kiplin Hall has kindly offered to make tea for the party, and after the meeting will arrange for those interested to be shown the Hall. This is a splendid chance to see one of the North Riding's historic houses.

PERMISSIONS.—Permission for the Kiplin Hall estate has been given by Miss Talbot and for Kirby Fleetham by Colonel J. H. Courage. The usual conditions regarding game, crops and no dogs apply.

TRANSPORT.—Great Langton is remote and without public transport. The Northallerton/Richmond bus arrives Kirby Fleetham 10-31 a.m. dept. Northallerton 10-5 a.m. Buses leave Kirby for Northallerton at 5-54 and 8-44 p.m. The Darlington/Richmond service, No. 25, goes through Scorton village, this is about 2½ miles from Kiplin Hall, 3½ from Langton Bridge. The morning bus service is no use, but there are buses at 6-19 and 8-24 p.m. to Darlington.

MAPS.—Sheet 91 (Ripon) Ordnance Survey (1 inch) and Sheet 44/29, 1 : 25000 (2½ inches) cover the area to be visited.

PREVIOUS MEETINGS.—The Union held a meeting at Northallerton for Ainderby Bottoms and Poole's Waste in 1946. Otherwise the district is completely unworked.

THE AREA.—The Permits for this meeting are for the river banks above the bridge at Great Langton, and for Kiplin Park. Other permits may be to hand before the actual meeting day.

The Kirby Fleetham estate extends for about 1½ miles on the south bank. Kiplin Hall stands in park land, with the lake formed by the damming of Bolton Beck, to work the mill at Kiplin.

The Swale here runs through extensive gravel beds, some of these have been worked in the past, and there are large gravel workings at Langton and higher up. Near Bolton-on-Swale repair work on the banks is in progress and may to some extent have spoilt some of the ground to be worked. But there are many acres of wild scrub. Willows and Balsam cover a great deal of the ground; there is a great deal of interesting and quite unworked ground, and every Section should find plenty of scope for their special requirements.

ORNITHOLOGY (J. P. Utley): A record number of species must not be expected at Langton; nevertheless, the number of birds seen should amply compensate.

The district is well populated with 'lowland' birds and though it is essentially a 'cultivation area' there are several very different types of habitat. The River Swale is bordered by extensive gravel beds, deep almost vertical cuts through alluvium, steep thickly wooded banks, arable, and pasture fields.

Nests of the Oyster-catcher have been found by the river and the adjoining woods may give Nuthatch.

The Church is about half a mile east of the village and north-west of this is some low-lying wet ground, the floor of a one-time lake. This is largely rough pasture and here Lapwing, Redshank and maybe Curlew can be seen, with the possibility of a few Snipe.

Near the village and bordering the river are large gravel workings and in places where the ground has been expended of usable material, there are several depressions filled with water, some almost overgrown with willow. Ducks may be here and this place can give a sight of a bird not common in the area. There are acres of scrub open woodland, ploughland and pasture that all call for attention; no place in the area should be neglected or passed by.

Given the weather usually associated with a V.C. 65 excursion, this should be a most enjoyable day for all bird lovers.

FLOWERING PLANTS (C. M. Rob.): Little has been recorded from the Langton, Kirby Fleetham district. The open disturbed gravel beds have an interesting and attractive flora, Vipers Bugloss (*Echium vulgare*) is plentiful. Last year there was a good stand of the alien poppy *Papaver lateritium*, a plant sometimes becoming established in waste places and persisting for many years, The purple Balsam (*Impatiens glandulifera*) forms dense thickets along the banks of the Swale, in some places swamping most other plants for considerable areas.

Green Hellebore (*Helleborus viridis*) is recorded from a pasture at Kirby Fleetham, Wood Stitchwort (*Stellaria nemorum*) is plentiful near Kiplin, Alpine Currant (*Ribes alpinum*), probably planted but looking native grows in Kiplin woods. Both Bur-marigolds (*Bidens cernua* and *tripartita*) are recorded from Bolton-on-Swale and may be by the lake at Kiplin.

The most interesting records for the area are *Limosella aquatica* and *Teucrium scordium*. These two very rare plants were found 'on the banks of Bolton Beck, near Catterick Bridge, near its junction with the Swale by Mr. Ward.' (Baines' Flora and Baker's *North Yorks.*). *Polygonum minus* also occurred in the same area. These plants have not been seen for more than 100 years, and the whole district has undergone a great change since those times; the actual junction of Bolton Beck and the main river has moved three times in the past 20 years, a sign of the very unstable type of ground hereabouts. There is a long history of burst banks and heavy flooding with the main stream of the river changing from side to side once a year or more often.

The Swale here is noted for the size and quality of the Trout. Some stocking takes place, but there is a fair percentage of wild fish. Grayling and Dace also occur, the latter in abundance.

The next meeting will be at Fairburn, V.C. 64, Saturday, 13th August, 1960.

Circular No. 595

Yorkshire Naturalists' Union.

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Assistant Hon. Treasurer and Membership Secretary:
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Hon. General Secretary:
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Telephone: Topcliffe 224.

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Rev. P. M. GARNETT, The Vicarage, Fairburn, Knottingley.
Telephone: Knottingley 2587.

The 574th Meeting

WILL BE HELD AT

FAIRBURN

V.C. 64

On Saturday, AUGUST 13th, 1960

HEADQUARTERS.—The Church Hall, Fairburn, where cups of tea will be available at tea-time. **Please bring your own food.**

TRAVEL.—Buses: from Wakefield: 20 past the hour, takes one hour.
from Pontefract: on the hour, takes 20 minutes.
from Castleford: 10-50 a.m., arrive Fairburn 11-05 a.m.
from Leeds: frequent service to Castleford.

MAPS.—1 in. Ordnance Survey Map, Sheet 97, York. Mr. R. F. Dickens will lend some 2½-in. maps of the district.

MEETING PLACE AND ROUTE.—Meet at Headquarters at 11-05 a.m. It is proposed to visit the Fairburn Ings Nature Reserve, by permission of the National Coal Board and the management committee of Fairburn Ings Nature Reserve. Some members may also like to investigate some of the old limestone quarries in the area. Members are asked to assist the Wardens and further the effectiveness of the reserve by refraining from looking for nests of any species, from trampling

about in the reed-beds and marshy areas, and from destroying plant life. Dogs are not allowed.

ORNITHOLOGY.—R. F. Dickens, Hon. Chief Warden of the Reserve, writes: The Union's last visit was reported in the September 1934 *Naturalist*, No. 932, p. 211, but subsequently the August 1938 issued contained a paper on 'A Dismal Swamp and its Avian Problems', by W. G. Bramley. All sections will find this useful for reference, and the ornithologists, in particular, for comparisons also.

In 1933, Bramley tells us, Sedge Warblers had become scarce, Reed Warblers had deserted some habitats and Reed Sparrows (Reed Buntings) were apparently absent. A day without reports of Reed Buntings is certainly difficult to imagine. The comparative status of Sedge and Reed Warblers is certainly worth examination. Where conditions are constantly changing, accurate counts of these and other species are obviously desirable.

The Great Crested Grebe is still one of the noteworthy species of the area. What proportion of the birds will have young? How many non-breeders are there? Brood sizes of grebes, swans, ducks and coots still in family parties should be recorded. Tufted and Pochard would seem to be only slightly more numerous now than thirty years ago; but surface feeders occur both in greater variety and larger numbers. *Any* of the surface feeders may be seen, but eclipse plumages may present difficulties. It will be interesting to see if Wigeon are in evidence at this date. Botanists may perhaps be able to provide part of the answer for the vast numbers of Mute Swans likely to be seen in August. Again accurate counts are needed.

Bramley's paper pays little attention to the waders; but there is no doubt that, in August, it may be the variety of migrant waders which provides the ornithologists with greatest interest.

The area has perhaps been more closely watched in recent years than any other in Yorkshire, with the exception of Spurn. Reference to Y.N.U. Ornithological Reports will indicate the importance of Fairburn not only for its breeding birds but also as a focal point attracting an almost endless variety of migrants.

A regular 'roll-call' and log book is kept of birds on the Nature Reserve and it would be helpful if as many counts/estimates of species as possible could find their way not only into the official report of the meeting but also to Mr. C. Winn, 7 Henson Grove, Airedale, Castleford, who deals with records for the area.

ENTOMOLOGY.—J. H. Flint writes: Although this will not be the best time of the year for the Coleoptera, the marsh vegetation should yield some interesting beetles. The longhorn beetle *Saperda populnea* (L.) has been found here and although it will be too late for the adult the typical galls may be found on the stems of sallow. Dragonflies are plentiful and in addition to the common species, *Aeshna grandis* (L.) is usually numerous over the water. Diptera should be abundant, and Hemiptera, particularly marsh forms such as *Cyrtorhinus caricis* (Fall.). Leaf hoppers (Vassidae) were present in enormous numbers in August, 1957, and should be again. The aquatic insects of the area should be well worth investigation, and the smaller pools and ditches are likely to be the most profitable.

CONCHOLOGY.—Mrs. E. M. Morehouse writes: The following species are found at Fairburn Ings: *Limnea peregeer* (Müll.), *L. palustris* (Müll.), *L. stagnalis* (L.), *Sphaerium corneum* (L.), *Helix aspersa* (Müll.), and *Cochlicopa lubrica* (Fér.). The freshwater molluscs have very thin shells.

These species should be looked for in the limestone quarry at Newton: *Clausilia bidentata* (Strōm.), *Pyramidula rotundata* (Müll.), *Hygromia hispida* (L.), *H. rufescens* (Penn.), *Vitrea cellaria* (Müll.), *Arianta arbustorum* (L.), *Helix aspersa* (Müll.), *H. hortensis* (Müll.), and *H. nemoralis* (L.).

FLOWERING PLANTS.—Rev. P. M. Garnett writes: A thorough botanical survey of the Nature Reserve at Fairburn is long overdue. The extraordinary circumstances of the formation of this 'lake district', which is of such interest to ornithologists, may well have created conditions of no less interest, which so far have remained hidden, to the botanists. Several nice plants are known to be there;

Hottonia palustris at the Newton end, *Acorus calamus* still in The Cut where Fairburn limestone was loaded for transport down the Aire, *Lysimachia nummularia, Lychnis flos-cuculi, Myrrhis odorata* and many others. There is abundance of *Typha latifolia* and *Iris pseudacorus*, while *Impatiens glandulifera* is yearly becoming more of a menace.

BRYOPHYTA (G. A. Shaw).—The most interesting moss of the Permian of this district is *Desmatodon cernuus* (Hubn.) B. & S. (*Tortula cernua* (Hubn.) Lindb.), known from several localities round about, and found in a quarry at Newton, near Fairburn, by the late W. H. Burrell in 1934, and seen by Y.N.U. bryologists at the Fairburn meeting of that year. It was accompanied by *Leptobryum pyriforme* (Hedw.) Wils. and *Funaria hygrometrica* Hedw. Other mosses mentioned in the report for 1934 include *Ceratodon purpureus* (Hedw.) Brid. var. *conicus* (Hampe) Hagen and *Phascum cervicollum* Hedw. from a wall-top skirting Byram Park. Little work seems to have been done on the bryophyta since that date. A most interesting record, however, was made by Miss C. M. Rob in 1957 when she found *Riccia fluitans* L. at Newton Ings, near Fairburn, an hepatic for which we have very few records indeed.

Perhaps the advice which Mr. Burrell quoted from Circular 267 can again be repeated: ' the bryologists would do well to visit some of the quarries where lime is burnt and look out for *Tortula cernua* and the rarer Thuidia.'

TEA AND MEETING.—At the Church Hall, Fairburn, at 5 p.m. After tea there will be a short meeting for reports of the day's work, and for the election of new members.

PLEASE NOTE.—Y.N.U. Subscriptions for 1960 (20/-) were due on January 1st, and should be sent without delay to The Assistant Treasurer, Mr. G. A. Shaw, Botany Dept., The University, Leeds 2.

ORNITHOLOGICAL SECTION (Preliminary Notice).—An additional meeting of the Ornithological Section has been arranged for Saturday, November 12th, 1960. This will be in conjunction with the York and District Field Naturalists' Society and will be held in the House of Laymen, St. William's College, York. St. William's is situated close to the east end of York Minster in the centre of the city.

The afternoon session, starting at 2-30, will consist of a series of short papers. Cups of tea will be available for anyone wishing to bring their own food. After tea, it is hoped to have a showing of some bird films. The evening session will start at 6 p.m.

Joint Meeting Botanical Section and The Botanical Society of the British Isles.—August 27th and 28th, at Barnard Castle for the Baldersdale and Stainmoor area.

Headquarters: the King's Head Hotel, Barnard Castle (bed and breakfast about 30/-). Meet at H.Q., 8-30 p.m., Friday, August 26th. Will any members attending please inform the Hon. General Secretary by August 9th. Further information may be had on request.

BOTANICAL SECTION.—Field Meeting, Askham Bog, York. Sunday, September 4th. Meet at the gate to the Golf Course near the railway bridge on the York-Tadcaster Road, just before the dual carriageway, 2 p.m. No arrangements for tea: members needing refreshments must bring them.

FUNGUS FORAY, September 9th-14th.—Thornton-le-Dale. Mycological Section Annual Meeting, Sunday, September 11th, following the Chairman's Address. Will members needing information please get in touch with the Section Hon. Secretary, Miss Grainger, Wilshaw, Meltham, Huddersfield.

BRYOLOGICAL SECTION.—September 17th. Queen Mary's Dubb, Ripon. Details from the Assistant Hon. Treasurer, Mr. G. A. Shaw.

PLEASE NOTE.—There will be no Circular sent out for the Autumn Section Meetings. The dates of these are on the member's card, with the meeting place. Members wishing for more detailed information should write to the Hon. Secretary of the Section.

CIRCULAR No. 596

Yorkshire Naturalists' Union.

President:
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G. A. SHAW, The Department of Botany, The University, Leeds, 2.

Hon. General Secretary:
Miss C. M. ROB, Catton Hall, Thirsk.
Telephone: Topcliffe 224.

The 99th Annual Meeting

WILL BE HELD AT

ILKLEY

By invitation of the Wharfedale Naturalists' Society

On Saturday, DECEMBER 3rd, 1960

In the Riddings Road Lecture Hall.

Turn off the Grove beside the Congregational Church. Free car park, off Brook Street, two minutes away.

TRANSPORT.—There are frequent Diesel trains and bus services from Leeds and Bradford. About an hour should be allowed for travelling. There are also bus services from Skipton, Harrogate and Keighley to Ilkley.

PROGRAMME

11 a.m. EXECUTIVE COMMITTEE MEETING.

12 noon. LUNCH. Lunch (7/6) may be ordered at the Lister's Arms Hotel.

Please book this through Mrs. A. C. M. Duncan, Bransty, Rupert Road, Ilkley, by November 30th.

There are also several cafés in Ilkley where lunch may be obtained.

2 p.m. GENERAL COMMITTEE AND ANNUAL GENERAL MEETING OF THE YORKSHIRE NATURALISTS' UNION.

3-15 p.m. CIVIC WELCOME by Councillor E. BINNS, J.P., Chairman of the Ilkley Urban District Council; after which Dr. VALENTINE, M.A., F.L.S., will give his Presidential Address:

The Future of the British Flora

The Exhibition arranged by the Wharfedale Naturalists' Society, SURVEY OF ILKLEY MOOR, will be on view in the Hall from 12 noon onwards.

Tea and light refreshments will be available at the Hall about 4-30 p.m.

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